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ORIGINAL ARTICLES.

INSANITY—MODERN VIEWS AS TO ITS NATURE AND TREATMENT.

By Professor W. T. GAIRDNER, M.D., LL.D.

(Being the Address delivered at the close of the Winter Session 1884-85 before the Glasgow University Medico-Chirurgical Society, by the Honorary President.)

(*Continued from p. 411, No. for June, 1885.*)

The lesson which I propose to draw from these considerations, in the meantime, is simply this—that the line between sanity and insanity cannot be, judging from historical evidence, very abruptly or definitely drawn. It is, therefore, not an affair of definitions, nor even of doctrines as to what insanity essentially is; but a question of practical adjustment, so to speak, between society and the individual; between the average sane mass (or mob if you like) of commonplace persons or "Philistines" on the one hand, who control, and at the same time constitute, the social machinery, and the eccentric, abnormally good or bad, or otherwise peculiarly endowed individualities on the other hand, dwelling within the protection of law, and therefore responsible to public opinion. Thus, it comes to be ruled in practice, and after due experience, that certain of these minds are, and others are not, capable of spontaneously giving effect to those limitations which must, in the interests of all, not less than of the insane themselves, be imposed upon individual freedom. That this is the only just view of the question of sane and insane, from the historical and political, or rather

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social, aspect, has been ably set forth in a preceding course of Morison Lectures, by Dr. John Sibbald, one of the Commissioners in Lunacy for Scotland.* So thoroughly do I agree with Dr. Sibbald in almost all that he has written upon this subject, that it is only from a desire to avoid repetition of what has been so recently uttered by my predecessor, that I refrain from stating more at large my own individual views, or, what would probably be still better, quoting very largely from these admirable Lectures. I may, however, for the sake of those who were not privileged to hear or to read them, state that the argument of Dr. Sibbald goes to show that the legal demarcation of the insane in different times and places proceeds upon what might be called a kind of sliding scale of social necessity or convenience, the ultimate rule being that in every society some persons must be more or less permanently separated from the average multitude, while others must be deprived of political or social rights, on account of acts which appear to society *as then constituted* to be inconsistent with the practical enjoyment of liberty and civil status by those who commit them. Of course, it is a tacit, if not an expressly formulated, condition of this practical sifting of the social organism, that *mere* eccentricity is to be tolerated, if there be sufficient practical control to hinder it from becoming *socially* worse; whether it be the eccentricity of high genius, or the "crankiness" of evil habits, superinduced upon the feebleness of sheer commonplace, distorted by vanity, or greed, or by special, perhaps latent, vicious indulgences. Thus, the eccentricity of a De Quincey or a Coleridge is tolerated, because it is, after all, socially speaking, only an inconvenience, although really, and in essence, truly morbid, because springing in a large degree from chronic poisoning by opium, and therefore quite as absolute and genuine insanity (to the extent of this habit) as any case of *delirium tremens.* And the minor eccentricities of such men as Samuel Johnson, Oliver Goldsmith, Charles Lamb, Thomas Carlyle, and many others, of whose lives we care to know the "seamy side" only because we are fascinated by the native power and nobility of the whole character—these partial deviations from normal habits, though questionably sane in some respects, are still more easily tolerated, because they are controlled by a large amount of common sense, and redeemed by divine gifts of genius, rendering the men possessing, or possessed by, these infirmities indispensable to humanity at large. But even our modern British society, though pervaded by what is in the opinion of J. S. Mill too little, and in that of others too much, respect for individual liberty, would be startled into intolerance if a Mahommedan dancing or howling dervish, or an Indian *fakir*, should insist on going through the more extravagant of his performances in the streets of London. The choice would then be between the asylum and the police-office; and who shall declare which would be the more just and true solution of such a complicated social problem? Nor are like ambiguous instances wanting, or indeed at all unusual, among ourselves, in the very atmosphere of Mrs. Grundy, surrounded by the Philistinism and "gigmanity," which aims at reducing all men to a dead level of respectability. We deliberately allow a poor, stunted, spoiled, and semi-demented type of humanity like Mr Windham, of Norfolk,* to become a prey to the spoiler, to utterly ruin himself, to extinguish the credit of an old county family, and finally to die almost an imbecile, because, after spending £30,000 in vain to prove him insane, it seems too great an interference with "liberty" to protect him against his own monstrous eccentricities and evil companions. On the other hand, we equally deliberately adjudge a notoriety-hunting, and by no means very stupid, person called Oxford to be insane because, when he shoots at the Queen, it is found equally difficult and inconvenient to let him go scot-free, or to hang him as for high-treason! The tacit convention of society accordingly is, that all eccentricities of conduct ought to be controlled by the spontaneous action of the will, guided by reason, so far at least as not to become a social nuisance. If so held in control, they are to be tolerated indefinitely; if not, they are either to be punished as crimes, or to be adjudged formally unsound in a legal and technical sense; and the test of sanity in the latter case is the practical one—the actual power of the individual to control his own eccentric individuality.

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* *Insanity in its Public Aspects;* three of the Morison Lectures for the year 1877. Lewes: Alex. Rivington.

In the earlier ages of our history, the legal field of insanity is, technically, more restricted than in these later ages; the defining line is drawn somewhat narrowly around the furious maniac on the one hand, and the imbecile or demented person on the other; the object being chiefly the protection of society, and hardly at all, if at all, the cure of the sufferer. With regard to all eccentric or even plainly abnormal minds not manifestly falling within these two categories,† an immature social organisation is disposed to be utterly regardless, or even reckless, in its abstention from pronouncing them insane. Such persons are simply allowed to *drift*, so to speak, until they come into collision with some stronger current of feeling than that which is aroused by the presence of mere mental unsoundness, and then society has its revenge by denouncing them as heretics, witches, ordinary criminals, or vagabonds, according to the prevailing impulses of law, directed by public opinion. It seems natural under these circumstances to believe (and Dr. Sibbald's Lectures contain something like proof of the fact), that in the Middle Ages a considerable proportion of those who would now certainly find their way into asylums were summarily executed under the severe laws in force against all these supposed anti-social categories; and as the actual treatment of the admittedly insane was little, if at all, to be preferred to death, there was not much to choose between the one or the other alternative, or to induce even the most benevolent reformers to urge the plea of insanity against the penal retributions demanded by what was supposed to be stern justice. "Exceptional conduct," writes Dr. Sibbald of the mediæval period, "was attributed to the worst conceivable causes, and every effort was used unsparingly to stamp it out. The sternness, or we may say the brutality, with which this determination to stamp out all such deviations was carried out, was a consequence of the fact that the efforts of civil government at the time were devoted almost exclusively to the preservation of the existence of the state. The political organisation had nowhere fully attained to a condition of consolidated stability, and society was in many cases still trembling near the verge of anarchy. It was almost inevitable, therefore, that persons, whether sane or insane, who committed breaches of public order, should in most cases be dealt with by the public executioner. But it also resulted from this necessity, real or supposed, that many insane enthusiasts, and others not guilty of actual violence, were also subjected to capital punishment." It is some small comfort that Dr. Sibbald is able to add—"We have evidence that the insane did not universally come to such tragic ends. Some must have been cared for in an intelligent manner. And we know that a considerable number who possessed a certain amount of shrewdness and drollery were received into the great houses and protected, partly from feelings of kindness, and partly because their eccentricities provided a source of amusement."

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* See Appendix, "The Windham Case."

† Technically the "furiosus" and the "fatuus" of Roman law; the distinction of which, imported into the practice of the Scottish law courts, gave rise to the distinction (now abolished) between the "Brieve of furiosity" and the "Brieve of idiocy" in the "cognition" of the insane.

"But we cannot doubt that a large number were also to be found among the herds of outcast vagabonds who existed in a worse than savage condition, wandering about the outskirts of the more civilised localities. These bands were truly sources of injury and danger to the community, and were, as might be expected, subjected to severe treatment when brought within the power of the law. Just before the adoption of a more humane system in the time of Elizabeth, 'we find the magistrates of Somersetshire capturing a gang of a hundred at a stroke, hanging fifty at once on the gallows, and complaining bitterly to the council of the necessity for waiting till the assizes before they could enjoy the spectacle of the fifty others hanging beside them.'" *

These statements have a most obvious bearing on the question that has been raised by the statistical returns of the insane within the present century, as to the supposed alarming increase of insanity among us, due to the form and pressure of modern civilisation. I do not intend to go fully into this question at present, but it must be already evident that if we take into account all the abnormal phases of the human mind falling under the designations just given, in the Middle Ages; and if we advert, further, to the numerous epidemic crazes of which we have already spoken, there is but little probability that the *sum* of actual insanity in those days was less, in its proportion to the population, than in our own. The presumption is, rather strongly, I think, that it was much greater, although as might be expected, very few data exist for settling the question, even approximately, on a numerical basis. One such attempt has been roughly made by Dr. Sibbald, in respect of one section only of the insane at a period somewhat nearer to our own day. I will not trouble you with the details, as they are confessedly only such a use of statistics as is to be justified where better cannot be had. But, according to Dr. Sibbald's judgment upon the few facts attainable, it would appear that for more than three quarters of a century after the death of Queen Elizabeth, when William Shakspere and the great Lord Verulam, each in his own sphere of literary activity, was breaking up the clods of prejudice and sowing the seeds of what we may call the modern spirit; during the period, too, when the art of medicine, in particular, was reaping the fruits of Harvey's labours in physiology, and of Sydenham's improved observation of disease; in the age which saw the foundation of the Royal Society, the experimental researches of Boyle, and the earlier mathematical and physical discoveries of Newton; throughout that period in literature which embraced Shakspere, and Milton, and Jeremy Taylor, and Chillingworth, and the earlier works of Dryden and of John Locke—"under the rule of the Stuart kings, a proportion of nearly one out of every four persons who would, with our present views, have been sent to an asylum was actually sent to the stake and burnt as a witch.* It was so far" (adds Dr. Sibbald) "a terrible solution of problems regarded at the present day as of the utmost importance—how to deal with patients so as to prevent a recurrence of their malady, and how to prevent them from propagating an insane predisposition to a succeeding generation." †

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* *Loc. cit.*, pp. 21, 22. For other illustrations in detail of these pregnant and, I believe, truthful representations of mediæval practice, I must refer to the reprint of Dr. Sibbald's Lectures, just cited, or to the *Journal of Mental Science*, October 1877.

Yet witchcraft was only one, as we have seen, of several forms under which the ban of the Middle Ages was habitually passed upon all that seemed out of harmony with the ruling principles of society then existing, whether in church or state. If we in this nineteenth century of ours have become more tolerant, and, as we think, more charitably minded; if we can no longer conscientiously burn our witches and our heretics, and send our vagabonds by fifties at a time to the gallows without waiting for an assizes; if the more settled state of our social fabric admits of greater individual liberty, and has reduced indefinitely the number, gravity, and apparent danger of political offences; nay, if even in the case of the most indubitable crimes, and those of the deepest dye, society hesitates now-a-days at inflicting the last penalty of the law—and in the opinion of many it has become merely a question of time when capital punishments are to disappear altogether—we may cheerfully accept as a counterpoise to this large and, on the whole, beneficent increase of individual liberty the trifling, almost fanciful danger to our freedom which springs from the wider range given to the legal definition of insanity, and the consequent increase and multiplication of asylums. Given the practical dilemma, that in every stage of civilisation there must be a certain or uncertain number of individuals with whom eccentricities, intellectual, moral, or emotional, are so developed in the *direction* of disease and of criminal acts as to render their complete responsibility doubtful, and their entire and unchecked liberty socially inexpedient or impracticable, is it better to deal with these (let us suppose) questionable instances after the mediæval or after the modern method? The answer to this question can only, I think, be qualified now-a-days by one very curious and perhaps too remotely theoretical consideration which, however, has been appealed to as in favour of the older method, and it is quietly suggested by the irony conveyed in the last sentence I quoted from Dr. Sibbald. What if, by sparing the lives of a large proportion of our eccentrics and insane, we are tending, in an ever increasing ratio, to the hereditary propagation of insanity in the race? What if the benevolence which allows half-mad people to go at large unmolested, should be poisoning the springs of mental soundness for the next generation? I do not say that this question, thus formulated, is altogether free from difficulties, but it is only part of a much larger one. It is indisputable that modern sanitary regulation, and perhaps also the art of medicine, have contributed largely to save from death an immense number of weakly and ailing infants in many places, and to render life possible under improved conditions of diet, cleanliness, ventilation, clothing, warmth and comfort in the dwelling, &c., to numberless adults who, even a century ago, would probably have died of fever, ague, dysentery, inflammations; and three or four centuries ago would have been secluded as lepers, or have become the victims of the black death, the plague, or the sweating sickness. Is the saving of these weaklings alive a cause of deterioration of the race? Is every scrofulous infant, for instance, artificially sustained among us till the age of puberty, a proximate danger to society; and should we therefore revert to the laws of Lycurgus, or to the principles so oddly, but with apparent seriousness, set forth in Plato's *Republic*, that the care of the family is a duty directly of the state, and that the lives which from physical delicacy are not likely to be of advantage to the state, should be deliberately sacrificed in the infantile period, or quietly allowed to drop in the adult?

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* See Appendix, "A Modern Witch."

† *Loc. cit.*, p. 28.

To those who may be disposed to entertain these puzzling and almost transcendental questions of political and social economy, I will only suggest in the meantime two considerations which may serve to reconcile them to the modern methods and expedients for prolonging life.

First, it is not yet certain whether society and advancing civilisation do not tend to introduce many new forms of death, while they remove or mitigate the old ones; and, *second* (for this is the one germane to my present theme), we have already seen that Mr. John Stuart Mill regards it as one of the political dangers or disadvantages of modern society, that it tends to repress individual character; that men are too much subdued to one colour, and that they tend to act and to think in social aggregates or mobs (more or less educated); that "Philistinism" is too rampant, and that individuality and eccentricity have too little scope? I have carefully reserved my opinion on this subject; and, in fact, I am not at all sure that I quite agree with Mr. Mill; but to one who does agree with him, and who is as much disposed as Mr. Mill commonly was, to carry a paradox to its logical consummation, it might fairly be set forth as one of the greatest benefits to be derived from the modern way of dealing with insanity, from the enlargement of its legal definition, and the resort to medical means rather than physical cruelty in its treatment, that a large store of eccentricities and individualities is thus preserved to us (in our asylums and otherwise), whereby society may be secured from the growing evil of a too slavish conformity to the average type of opinion and of character! At all events, such considerations as these, even if they partake of the nature of caricature and paradox, may reconcile us to the idea that our first duty to the insane is to treat them, so far as our knowledge extends, according to the dictates of humanity and justice; and to leave questions of social and political economy as much as possible to time, and to the operation of those moral laws which are greater than our conceptions, and which, like the laws of physical nature, may be trusted in the end as representing not a chaos, but a cosmos.

At this point, then, we begin to feel our way towards the physician's view of insanity; the essence of which is that mental unsoundness, however its definition may be enlarged or restricted on suggestions proceeding from the lawyer, the divine, the moralist, or the social philosopher, is in fact, so far as the individual is concerned, simply *a disease*, and therefore to be regarded according to the analogies of bodily disease and function, and treated accordingly. In what remains of this lecture, accordingly, I desire to point out some of those analogies which, though of course they are not to be blindly followed, yet as a rule tend to bias, and often to determine, the judgment of the physician in his dealings with mental unsoundness.

In the first place, it may be certainly affirmed that the whole, or nearly the whole, of those modern improvements in the treatment of the insane, those vast and beneficent changes with which the names of William Tuke, and Pinel, and Charlesworth, and Gardiner Hill, and Conolly are associated, have been the direct result of the conception that insanity is, more or less, a condition having analogies with the diseases of the body; like them, that is, in arising often from very appreciable and sometimes from removable bodily causes; like them, also, in being often limited or controlled by physical remedies, or hygienic circumstances, acting directly upon the bodily health; but, above all, like them in consisting essentially of *altered, disordered, or deranged function;* so that, as in the case of bodily disease, the physiology comprehends and at the same time illuminates the pathology; the careful study of normal function is the one indispensable condition for the just appreciation and skilful management of the abnormal. It is this last point of view that I propose to illustrate a little further on the present occasion.

It does not appear to me to be quite a correct statement of the claims of the physician in respect of insanity to say, as some have said, that it is by the application of remedies to the body, and by physical influences acting through the body, that the disorders of the mind have been in these modern times first brought within the scope of rational treatment. What is, however, I think, a perfectly correct statement is that, until Pinel was appointed to the charge of the Bicêtre at Paris, in 1792, the methods and resources of real medical science had scarcely at all been employed, or even much thought of in the management of the insane. It was not that there was any lack of so-called medical remedies in mental disease; for, from the times of Galen and Dioscorides, hellebore had been vigorously used, as every one knows from classical allusions; and in the Middle Ages both bleeding and purgation, and all manner of perturbatory remedial expedients were, no doubt, freely employed in all cases bearing the character of *phrenitis,* which may be taken as the equivalent of acute mania. But the whole tendency of opinion was, to let the curative be subordinated to the restraining influences. The medical care of the individual patient was simply lost sight of in the more urgent social interest involved in keeping (as it seemed) a sort of wild animal in safe custody; and, as a natural consequence, only that kind and quality of medical skill was even allowed to be exercised which could be harmonised in principle with the cruel or thoughtless severities, unredeemed by sympathy, that were long considered to be of urgent social necessity in all cases of insanity, except those which, by their entire freedom from apparent risk of violence, or other objectionable manifestation, allowed humane feeling to get room for its exercise. I should be inclined, indeed, to hope, for the sake of our common humanity, that careful research might possibly discover some exceptions to this broad statement; that in those very "ages of faith" when witches, heretics, and mad folk were most relentlessly dealt with after the manner that has already been sufficiently indicated, it might, perhaps, be found by the historical antiquary that in some Franciscan refuge, or Dominican monastery, a practical work was being done for God and man alike by reclaiming some of these outcasts, as we know was done in respect of the lepers and the plague-stricken, under the grand impulse of Christian love and brotherhood, whether with little science or with much. But in the main, the treatment of insanity was so debased by the mere moral paralysis, so to speak, of fear, that medical aid, if afforded at all, was subdued to the atmosphere (noxious and poisonous alike physically and morally) within which it was permitted to work by the prevailing public opinion. Nor is it at all necessary for my argument to maintain that medical opinion was on the whole much in advance of public opinion. Rather is it a remarkable thing that, when the great compacted systems of medical thought which had occupied the first half of the eighteenth century had been almost played out, and when systems of medical belief having authority had been even fatally disparaged, because brought into hostile competition with such utterly unphilosophical and unscientific doctrines as those of Brunonianism, there should have arisen two distinct and apparently unconnected movements for the more humane and scientific treatment of the insane, both in the last decade of the century—one in England, under the beneficent guidance of the Society of Friends, and one in France, in the very midst of the Revolution, and on the eve of that Republic which shortly afterwards erected the guillotine and deluged the streets of Paris with innocent blood.

It is scarcely possible to conceive of two medical characters formed in the midst of more entirely different associations than those of Tuke and Pinel; and the only view, I think, that will meet the case historically is that here, as in so many other crises, the "fulness of the time" was come when, by a certain maturity of medical doctrine and of public sentiment alike, it was at last possible (though not without many obstructions and hesitations) to bring together the social forces which tended at once to enlighten the public mind, and to restore the long disturbed equilibrium of feeling towards the insane. What has been accomplished since then in the name of humanity and civilisation, has been described so often and so well, and even in preceding courses of Morison Lectures, that I shall not detain you upon it now; but what may require to be indicated more clearly is the relation of these beneficent changes to the change that has been going on during the same period in the whole range of medical science, whether as regards the theory or as regards the practical management of disease.

The modern conception of the healing art differs from the more ancient chiefly, perhaps, in this:—That disease is no longer regarded as an *entity*,* so to speak; a physical, or metaphysical, or metaphorical *something* introduced into, and yet separate from, the organisation; but rather as a change superinduced upon the healthy modes of activity of the functions, which may be thus expressed—*Normal function acting under abnormal conditions.* The old humoral pathology, which reigned supreme in the schools (with some exceptions) from the Hippocratic age down to the last century, busied itself chiefly with the study of a *materies morbi*, or essential matter of disease; concocted, it is true, out of the normal *humours* or elementary principles recognised as existing in different proportions (or *temperaments*) in differently constituted individuals; but still to be viewed essentially as a foreign material having to be driven out, either through artificial purgation, or through some spontaneous process of elimination, aided by time and by the use of various drugs and chemicals, or by blood-letting and other mechanical methods of withdrawing the vitiated fluids from the system. And this, it is to be observed, was the most advanced and scientific, as well as the most accepted, theory of disease in almost every age previous to the time of Morgagni's great work on anatomical pathology. The medical observations of Sydenham, for instance, are pervaded by this theory; and all his efforts are directed by means of this humoral pathology, and also by the more accurate study of details, to overcome the more obscurantist conceptions of his day, such as those which attributed to certain fevers a mysterious or occult quality of *malignancy*, akin to a kind of supernatural or demoniac influence. And of the vitalistic, or, as we might now term it, the spiritualistic or non-material hypothesis of diseased action, it may be said that without any countervailing advantage in respect of philosophical insight, it lends itself far more than the humoralistic to all sorts of superstition and charlatanism; insomuch that from Paracelsus to Hahnemann there is not a single revolutionary system of universal medicine that does not attempt to find a short cut into the mysteries of disease, by throwing over as useless the study of function associated with structure—anatomy, physiology, and pathology—in favour of some wild hypothesis which reduces the whole science of medicine to a formula of phrases, and the whole art to an administration of *specifics*. The disease, in other words, is by most of these systems regarded as something inscrutable or occult; the remedy, therefore, must be something which has been discovered by a stroke of genius, and is accordingly to be accepted upon the *ipse dixit* of its inventor; or, if a theory of cure is also wanted, some plausibly simple general law is set forth, by means of which *all* remedies must needs act, and the application of which, to a particular case, dispenses with the aids of genuine science, and, in fact, with the study of normal function altogether. The disease and the remedy are, as it were, in theory made expressly for each other; the disease as an *entity*, the remedy as its providential antidote, acting and reacting on each other; the nature of the connection between them being, like the nature of the disease itself, inscrutable, and therefore not worthy of investigation in detail.*

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* This statement is not quite exact, and might even be considered to be the reverse of the fact, were attention given chiefly to the ever-increasing domain of *micro-organisms* in their relation to modern pathology. But no one, ancient or modern, has ever affected to deny that a parasitic origin is justly to be assigned to many diseases. The mode of thought in respect to disease here criticised as existing generally in the past, is that which, by an hypothesis greatly in advance of any ascertained facts, presumes the existence of an objective cause for all diseases, and adopts remedies *for the disease* (not the *patient*) corresponding with the hypothesis entertained. Boerhaave's theory of a "spontaneous gluten" was a marked instance in point, in not too remote times.

Now, to this mode of viewing diseases and remedies, modern science opposes a different method altogether. It does not, indeed, repudiate formally the humoral pathology, nor does it in all cases deny the existence of a *materies morbi;* but it exacts evidence founded on detailed investigation both of the one and of the other. Neither does modern medical science affect to deny that many diseases are still unsolved problems; but it denies that they are insoluble problems. Behind the disease, it aims at thoroughly understanding, and so curing, the living man with his many functions or faculties, and his complex organisation; behind the abnormal function it discovers, and inquires into, the normal function, in the due support of which safety and cure are alike to be found if at all. And the result of almost all such inquiries is that normal function is found to be still in operation, still struggling, as it were, to assert itself, even in the midst of the most extreme derangements caused by disease. * The heart beats, and circulates the blood, even although its action is impeded; the nutrition of the tissues is not suspended, even although the disturbing cause of a fever is leading to increase of waste; the nervous system still exerts a controlling and regulating influence over the other functions, even although the mind is at the time wandering in delirium, or sunk in coma. And the problem of cure consists, for the most part, not in the administration of antidotes, or the discovery of specifics, but in the careful study of all the details and modes of functional activity, normal and abnormal, with the view of removing obstacles, strengthening weak points, and, in general, affording the most efficient assistance possible towards enabling normal function to overcome abnormal, in the individual case. We have come to aim at treating not so much the *disease*, as the *man affected with the disease;* administering our remedies, not upon the principle of warring with an occult foe in some obscure corner of the man, but on the far higher principle of dealing with the whole man, and assisting, as well as may be, all that is sound in him to overcome what is unsound.

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* See paper by the author on Homœopathy, in *Edinburgh Essays*, by Members of the University. Adam & Chas. Black. 1857.

It would be easy to give illustrations of this truth from the modern practice in particular forms of bodily disease; but I must be content here to refer to the healing of wounds and of fractures by simple protective agencies and by antiseptics; the substitution of nourishment for depletion in all forms of acute disease; the greatly increased employment of hygienic agencies, both in acute and chronic diseases; the use of regulated exercise, and of electricity in paralytic disorders; the whole field, so recently opened up, of preventive medicine, as examples of the modern spirit at work in the dealing with disease, not as a separate *entity*, but as a disturbance, or series of disturbances, of the normal functional activity, from external causes acting unfavourably on the functions, rather than from an internal warfare with an unseen and unknown antagonist.

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* The Hippocratic method of expressing this truth is to be found in the well-known aphorism or axiom—*Νούσων φύσιες ἰητροί* quoted above from an ancient treatise, where it lies like a nugget of gold in the midst of a confused heap of formless material, probably wrongly attributed to the great master—but often wrongly apprehended when it is supposed to cover general assertions or laws as to "Nature" in the cure of disease; as for example, in a well known book by the late Sir John Forbes. The notion of "Nature" as a purely beneficent power universally over-ruling, or combating, disease is an abstraction, I suspect, of comparatively modern growth. The original is at once more subtle and more exact—"Our natures are the healers of our diseases;" in other words, the functions of the body, which are disturbed in disease, and which in the aggregate constitute the φύσις, or nature, of the body, are themselves the sources of healing; as when a wound, or a fractured or necrosed bone, is healed by the throwing out of granulations or of callus.

But if this last conception, which in one shape or another dominated almost the whole of the ancient pathology, was a very imperfect and misleading conception even of bodily disease, you will easily perceive how disastrous such a conception must become when applied to the case of insanity. The hypothesis of disease as a metaphysical entity, separate and apart from any manifestation of normal mental function, lends itself, in fact, with a fatal facility to two popular impressions and theories of the unsound mind, each of which has been productive of enormous suffering to the insane, and corresponding moral degradation to all who have had to do with them. One of these is the theory of demoniac possession, to which I have already adverted in connection with witchcraft; the other is the theory that the insane mind is in fact an altered personality—another mind, *mens aliena*—disputing with the sound mind the empire of the body, and compelling it to the performance of acts, and the use of expressions, not only differing from those of the sound man, but having no relation at all with the manifestations of normal mental and bodily function.

It is not necessary to assume that these theories have been always frankly and thoroughly adopted without reservation in any past age, or that they have been logically and coherently maintained even by those who have in practice been mainly guided by them. The second is obviously a much milder and attenuated form of the first; but just as the humoral pathology left it entirely doubtful, in most cases, whence the *materies morbi* in a particular disease of the body was derived, so this pathology of the insane mind leaves us quite in the dark as to whence the *other* mind or personality comes which thus usurps the functions and takes possession of the bodily organs of the madman. It may be admitted that the phenomena of the insane mind are hard enough to interpret in any case; and that simply as a figure of speech the monomaniac who loudly proclaims his own altered personality—who, in his raving, affirms that he is St. Paul, or Julius Cæsar, or the Wandering Jew—may be admitted to be "beside himself," and to be directed, in a certain allegorical and quite non-scientific sense of the word, by another spirit than his own. But the French have preserved, even in their scientific nomenclature, a vague impression, or survival (so to speak) of this crude metaphysical conception, by fixing upon the phrase "aliénation mentale" as the most general expression of insanity. And even now it is in the main correct to say (although the impress of modern medical opinion has not failed altogether in making itself felt) that the legal theory of the capacity of the insane for civil acts has been largely guided by the presumption that a man insane is, by the very fact of his insanity, moved or impelled by something within him that is not *himself*, and therefore that he becomes, as a changed personality, legally incapable of any sound or valid civil act whatever.

There can be no doubt, I think, that this popular idea of the *alien* mind, the altered *ego*, or personality of the insane man, the idea that a madman is a being "out of his mind," "beside himself,"—*possessed*, in short by something that is *not* himself, and that acts and speaks independently of the man himself, is largely responsible for many of the cruelties practised upon the insane in this and other countries, even in times when the more superstitious, but also more logical, conception of demoniacal possession had nearly become obsolete. The state of the public mind which permitted an English judge (Tracy) in 1723 deliberately to liken a madman to "a brute or wild beast" without unfavourable remark, shows an advance, perhaps, in some respects, on the demoniacal hypothesis; but on the other hand it corresponds only too well with the shocking condition of the patients in "the first lunatic asylum in England unconnected with ecclesiastical administration,"—the hospital of St. Mary of Bethlem, well known, and afterwards notorious, under the abbreviated and typical name of Bedlam. "Up to the year 1770," writes Dr. Sibbald, "the patients were exhibited to the public like wild beasts in cages, on payment of a penny; and they are said to have afforded much sport to the visitors, who flocked to see them, in numbers estimated at not less than 48,000 annually." Evidently the idea of cure, in this so-called hospital, was entirely in abeyance, much more so probably than during the century and a half when it was under monkish supervision. Over the gates of Bedlam might well have been inscribed Dante's celebrated and awful motto for the portal of hell, "Lasciate ogni speranza, voi ch'intrate." One of Hogarth's most impressive pictures will recur to every one as a vivid representation of the horrors here alluded to, showing that the condition of the insane in England in his day was in many respects much worse than that of the "beasts which perish." Indeed, there was not even the pretence, for the most part, of "care and treatment" in the Bedlams of this period. The violent or dangerous lunatic was simply regarded as a portent and a terror, or (as we have seen) a show; or at all events as something to be put out of the way with as little ceremony as possible; a being, human in form no doubt, but having so little real humanity remaining as not to be fit to be soothed and comforted, much less cured, by medical treatment, or even by exorcism and prayer; but simply chained up and allowed to wear himself out in struggles, and curses, and filth and degradation both moral and physical. The innocuous lunatic, on the other hand, the born idiot, or "natural," as he was called in Scotland, was, as most of us well know and remember, allowed up to a much later period simply to become the sport of circumstances—to drift, as I said before, often without even the amount of care and kindly domestic supervision which is commonly secured by public opinion and private feeling alike for the Swiss *crétin*, or *chretien;* a feeling very probably the result of a lingering survival of the ancient superstition of possession,* but in this instance, fortunately, supposed to be possession by a good, instead of an evil, spirit. What became of the intermediate grades of the insane in England in the eighteenth century, it is difficult to say. Probably they too were allowed to drift, until under the influence of hard usage and hard fare, perhaps of positive persecution and wrong, evil passions were aroused, the "brute or wild beast" came uppermost, and thus a qualification was obtained for entering a Bedlam on the one hand, or on the other for a speedy release from all the "evil done under the sun," through the summary processes of vindictive retribution to which I have already alluded.

It is impossible to present to the mind, or even to the bodily senses, a greater contrast to all this than is to be found in the wards of a well regulated modern asylum. Here we have the whole resources of the healing art, in the largest and most liberal sense of the term—hygienic, dietetic, medicinal, moral—placed at the disposal of the physician, for the cure if possible, if not, then for the relief and comfort, of the insane mind. And observe the principle adopted—for it is this, and not the mere triumph of beneficence and clemency over harsh-ness and cruelty to which I am anxious to call your attention. The principle which led Pinel, in 1792, to strike the chains from the limbs of the first eighty lunatics in the Bicêtre, was undoubtedly the same which has mainly guided the improved practice of medicine in all its departments during the last half century. That principle is that in the whole pathology of disease normal function must be held to underlie abnormal function; that in the cure of disease, in like manner, the sound elements still remaining must be carefully respected; strengthened and built up again if possible; in all cases, however, anxiously tended and nursed; the sane man within the insane being, so to speak, supported and buttressed up, so as to overcome, or reduce to a minimum, the encroachments of disease. I am by no means confident, indeed, that Pinel thoroughly appreciated this principle in its far-reaching applications to the whole field of pathology—and indeed there is pretty good evidence in his writings that he did not; but there is also evidence that he opened the way, with firm and undeviating convictions and brilliant success, in that particular field of medical science and art which was most in arrear in this respect. From Pinel to Conolly, and from Conolly to the present hour, a whole cloud of witnesses can be produced to show that the remedies for the unsound mind are such things, for the most part, as tend to strengthen and confirm the "sound mind in a sound body." Not wrath against wrath, violence against violence, hunger and cold and filth against the insane neglect of bodily comfort; but the quiet and steady power of the sane will controlling and gradually dominating the insane, good food, active employment, carefully adjusted so as to draw out the latent or oppressed faculties; exercise, if possible, in the open air; books, pictures, newspapers, music; strictly enforced cleanliness and ventilation; and occasionally medicine for the body; such are the chief elements of the modern treatment of insanity; and these are employed (restraint and confinement being as much as possible dispensed with), not on merely sentimental grounds, but as the result of a profound and growing conviction that it is only by educating and restoring the sane mind underlying the insane, that the disturbed condition of the whole of these functions can ever be brought back to order and sanity. And thus, even in the worst cases, the educated physician of the insane proceeds upon exactly the opposite principle from that implied either in demoniacal possession or in the *aliena mens;* he makes it his duty carefully to search for and follow up all the normal elements still acting in the diseased or insane mind: and in order to do this effectually he makes it his first business to inquire into all the events in detail which have led to a gradual alteration or violent disruption of the old sound existence and modes of thought, and thus to the loss or obscuration of the sense of continuity of life, and therefore of personal identity. So labouring he often succeeds; sometimes, no doubt, he fails; but on the whole the condition of every public asylum in this country is now-a-days a standing testimony to the fact that the insane, as a class, are largely ruled by the same motives, attracted by the same pleasures, interested in the same events, as the sane. And as a corollary to this discovery, the discipline of asylums approximates more and more to the discipline of a large, well regulated, sane community, provision being made, of course, by a proper assortment of cases and distribution of attendants, for the personal security of all, and for the watching, control, feeding, nursing, and cleanliness of those whose habits or whose feebleness most require it. No more brilliant application of medical science than this has ever been known in any age of the world's history.

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* Dr. A. Constans, *Relation d'une Epidemie d'Hystero-démonopathie en 1861*, has described with many curious details an example of the survival of the older form of the superstition in a little village in Savoy; where the cure, however, was brought about by modern, not mediæval, treatment.

LECTURE ON APHONIA, OR LOSS OF VOICE CONSEQUENT ON LARYNGEAL DISEASE, WITH ILLUSTRATIVE CASES.

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(*Delivered at the Glasgow Royal Infirmary during the Summer Session of 1885.*)

It is my purpose to-day, gentlemen, to direct your attention to some of the conditions which lead to impairment or complete suppression of the voice; but, before doing so, I ask your indulgence for a few moments while I define the affections which should be included under the term aphonia.

In most laryngeal affections, more or less severe and permanent impairment of the voice may be present; in some cases the departure from the normal is by no means marked, and may only amount to slight hoarseness; while in other cases phonation may be impossible, and the voice reduced to a whisper.

Aphonia is almost as constant a symptom in laryngeal affections as cough is in diseases of the lungs, or albuminuria in diseases of the kidney, but just as the cough or the presence of albumen in the urine cannot be regarded as characteristic of any particular pulmonary disease or renal disorder, so loss of the power of producing normal vocal sounds indicates only approximately the nature of the diseased condition in the larynx.

In order that an intellectual idea may be expressed in articulate speech, the proposition must be formulated in the higher centres of the brain, and transmitted for verbal expression to the third left frontal gyrus, which calls into action, through the corpus striatum, the motor nerve nuclei in the medulla oblongata which are concerned in articulation and phonation. The impulse is then communicated to the laryngeal nerves, and through them to the vocal apparatus, where sound is produced to be subsequently modified into words in the oral cavity. The larynx is only capable of producing tones, which become modified into articulate speech by the organs intervening between the glottis and the os externum. You are aware, from your knowledge of the physiology of the subject, that phonation is produced by the forcible passage of air through the chink of the glottis, the vocal cords being thrown into vibration during an expiratory effort; a whisper may, however, be emitted either during inspiration or expiration, and without any movement of the vocal cords. The force and the amount of air regulate the strength of the voice, whereas the pitch is dependent upon the position and tension of the cords, while the modifications of the primary sound, by which it is converted into articulate speech, are regulated by the movements of the jaws, lips, cheeks, tongue, and soft palate.

Loss of speech may therefore arise from some damage to the higher centres by which the formation of ideas is prevented; or the ideas may be formed, but a breach may be left in the mechanism for translating these ideas into words, or of transmitting them to the lower centres. Inability to speak may also depend upon lesions of the co-ordinating centre for the muscles producing articulate speech, even although the vocal organs are in no degree paralysed, and the mental faculty of speech retained as evinced by the understanding of words spoken, or by the possession of the power of expressing thoughts by writing. Again, a condition may exist in which, from more or less paresis of the muscles concerned, articulation may be impaired or lost, while phonation, or the simple production of vocal sounds, may still remain. Speechlessness arising from this cause must be carefully distinguished from cases in which the voice is lost in consequence of the forgetfulness of words.

You will therefore understand from what I have said that speechlessness may be due—first, to a want or loss of ideation; second, to aphasia, or the loss of the faculty of intelligent speech, consequent on a lesion of the cerebral centre or centres of speech ; third, it may arise from amnesia, or the loss of the memory of words ; fourth, to alalia, if the lesion be situated in the corpus striatum, in the medulla oblongata, or in its nerves ; and fifth, to aphonia, when the inability to speak arises from some lesion of the laryngeal apparatus.

I may remind you that, when the vocal cords and the arytenoid cartilages are not approximated, so that a space intervenes between them during attempted phonation, the voice fails ; and if the tensor muscles be paralysed, even although the glottis may be closed, the cords do not vibrate, and no proper laryngeal sound is produced. The character of the sounds depends upon the amount of vibration of which the paralysed cord is capable. Thus the voice may fail only in certain pitches ; a low note may be developed with comparative purity, while the patient is quite incapable of forming a high pitched note ; and not uncommonly, while a feeble effort is incapable of producing a vocal sound, more energetic attempts at phonation may be successful.

For the sake of convenience, the causes of aphonia may be classified under the following heads :—

1st. Loss of speech, consequent upon nervous lesions, leading to paralysis either of a group of or of all the muscles concerned in the production of vocal sounds.

2nd. Aphonia arising from some mechanical interference with the action of the arytenoid cartilages, or of the movements of the vocal cords.

3rd. Aphonia consequent upon interference with the force of the current of expired air.

4th. Aphonia caused by the action of certain toxic agents.

5th. Aphonia without any recognisable nervous lesion, or any mechanical cause to which the arrested movements can be attributed.

Before directing your attention to aphonia arising from the first group, namely, paralysis of the laryngeal muscles, we may consider for a moment the actions of the various muscles brought into play during phonation. They may be said to have a double function to perform, one in connection with respiration, the other with phonation. With respect to the latter, the muscles may be divided into two classes, those which regulate the pitch of the vocal notes, and those which govern the aperture of the glottis. The glottis is dilated by the posterior crico-arytenoid muscles, so that during their action a wide aperture is made to intervene between the vocal ligaments. They pull the processus musculares of the arytenoid cartilages backwards, downwards, and towards the middle line, so that the processus vocales are drawn apart; when these muscles are paralysed, the glottis does not open sufficiently, and an obstruction being offered by the vocal cords to the ingress of the air, the patient suffers from dyspnœa, but the voice is not necessarily altered to any great degree. The aperture of the glottis is closed by the combined actions of the crico-arytenoidei laterales and arytenoideus transversus. The vocal cords are brought together by the processus musculares being rotated forwards and downwards, so that the processus vocales are approximated; therefore, if the arytenoideus transversus be paralysed, the voice is enfeebled or entirely lost on account of the escape of air between the arytenoid cartilages during attempted phonation; and, if the crico-arytenoidei laterales be paralysed, complete aphonia is the result. The pitch of the voice depends upon the tension of the vocal cords. These are put upon the stretch by their anterior and posterior attachments, namely, the thyroid cartilage anteriorly, and arytenoid cartilages posteriorly, being separated from one another. This is accomplished in two ways, by the movement of the thyroid cartilage upon the cricoid, and by the rotation of the arytenoid cartilages. The muscles which depress the front of the thyroid cartilage on the cricoid cause the distance between the thyroid and the arytenoid cartilages to be increased. These muscles are the crico-thyroid and the sterno-thyroid; but while the anterior attachments of the vocal cords are being thrown forward, the posterior attachment is being drawn backward by the arytenoid muscles and the crico-arytenoidei postici. Therefore paralysis of the crico-thyroid will cause the voice to become harsh and deep, or to be entirely lost from insufficient tension of the vocal ligaments. On the other hand, the vocal cords are relaxed when the thyro-arytenoid and thyro-hyoid muscles are brought into play. .

It may be generally stated that the coarser variations in the pitch of the voice are produced by the crico-thyroid and the sterno-thyroid muscles, while the finer variations of tension are governed by the thyro-arytenoid muscles. The closure of the glottis is regulated partly by voluntary and partly by involuntary action. It closes by an automatic impulse during coughing and sneezing.

The nerves which supply the larynx are the superior and the inferior laryngeal branches of the pneumogastric, joined by filaments from the sympathetic. The superior laryngeal nerve supplies sensory fibres to the larynx above the level of the vocal cords, as well as motor filaments to the crico-thyroid, the thyro-epiglottic and the aryteno-epiglottic muscles, and in part to the arytenoid muscles. The inferior laryngeal is essentially a motor nerve, and supplies filaments to part of the arytenoid muscles, and to all the muscles of the larynx, with the exception of those supplied by the superior laryngeal. The two nerves communicate with one another on the posterior part of the larynx beneath the mucous membrane of the pharynx, and on the side of the larynx under the ala of the thyroid cartilage. In connection with the pathology of laryngeal paralysis it is important to remember the position where the recurrent or inferior laryngeal nerve is given off from the pneumogastric, as it is very apt to be injured or pressed upon by new formations in some part of its course. On the right side it arises in front of the subclavian artery and ascends obliquely to the side of the trachea behind the common carotid artery. On the left side it has its origin in front of the arch of the aorta, and winds from before backwards round that vessel, and then ascends to the side of the trachea.

Neurosis of motion may be conveniently divided into two classes—paralysis or loss of power of movement, and spasm or perverted power. Paralysis may arise from a considerable number of nerve lesions. Thus, we may have it dependent upon a central disease in the medulla oblongata at the roots of the pneumogastric and spinal accessory nerves, in which case it is usually associated with symptoms indicative of other serious cerebral disorders, while in other instances, aphonia may result from injury or disease in some part of the course of the spinal accessory, of the pneumogastric, of the superior laryngeal, or of the recurrent laryngeal nerves; or it may have its origin independent of any distinct neurosis, under which circumstances the loss of voice may be described under the term, myopathic aphonia. Again, paralysis may be observed as one of the sequelæ of diphtheria or of cholera; it may also be associated with other nerve lesions, such as facial paralysis, it may be accompanied by symptoms of progressive bulbar paralysis, or be co-existent with paralysis of the constrictors of the pharynx.

We shall first consider the distinguishing features by which the various forms of paralysis of the laryngeal muscles may be diagnosed from one another, and then proceed to consider aphonia arising from mechanical interference with the action of the cords, and I will illustrate what I have to say, as far as possible, by reference to cases which I have seen either in hospital or in private practice.

Loss of power of the muscles of the larynx may arise from disease of, or injury to, the medulla oblongata, in which case it is usually associated with grave symptoms of other cerebral disease, such as progressive bulbar paralysis, general paralysis, multiple sclerosis, syphilis, or disease of the brain. Under such conditions the laryngeal symptoms may vary greatly, according to the situation of the lesion; for example, we may have loss of power only of one or two muscles, or all the muscles acting on one side of the larynx may have their function impaired. Generally, in the disease of which we are now speaking, the paralysis extends to the palate, tongue, lips, &c., and even the facial nerve may be involved, and there may be indications of interference with the functions of the pneumogastric. The diagnosis of paralysis arising from central lesions, rests upon the fact that the paralysis is not limited to the larynx, but is co-existent with other evidences of neurotic disease. I have almost nothing to say regarding special treatment, as the only condition in the larynx which calls for active treatment is inaction of the abductors, which may, on account of the obstruction to inspiration, necessitate the performance of tracheotomy. I will not occupy your time by bringing under your notice, in detail, two lesions which may lead to dysphonia or aphonia—viz., disease of the spinal accessory, and of the pneumogastric nerves.

These diseases are so rare, independent of other nerve lesions, that I will now pass to the consideration of paralysis arising from lesions of the superior laryngeal nerve, and instead of mentioning the symptoms of this disease, I shall describe to you a case which occurred in my own practice.

The patient was a child aged 7 years, who had suffered since infancy from enlarged glands in the neck and other indications of scrofulous disease. Some of these glands had suppurated, while others remained as hard, indurated masses, varying in size from that of a small pea to that of a large walnut. This child was brought to me on account of the difficulty which he experienced during deglutition. When he tried to swallow fluid or semi-fluid food, it was certain to cause great coughing and difficulty in breathing, on account of small portions entering the trachea. On laryngoscopic examination the tonsils were found to be enlarged, and the mucous membrane of the larynx was injected and œdematous; while on the right side there was a general diffuse swelling, closely resembling an abscess in appearance, and occupying the pharyngeal wall behind the posterior pillar. Aphonia was complete, even although the vocal cords came together during attempted phonation, and when a probe was passed into the larynx no cough was induced, and the patient could bear manipulation without inconvenience. The paralysis of sensation seemed to me to be due to the swelling in the pharynx. Hot fomentations were applied to the neck, and the patient was ordered to take iodide of iron and cod liver oil. Three days after this, the child was brought back, when an abscess of considerable size was found to occupy the right side of the pharynx. It was opened first by the aspirator and subsequently by a free incision, and he was ordered to take semi-fluid food. In a week the voice returned and he was able to swallow with comparative ease; in a fortnight after he came under my treatment the larynx appeared to be practically normal, and to have regained sensation, so that when a probe was passed into the cavity of the larynx, a normal amount of spasm and irritation was produced. In this case it seems clear that the paralysis of sensation was the direct result of pressure upon the superior laryngeal nerve by the abscess on the right side of the pharynx; and this is, I believe, one of the most common causes of unilateral or even of bilateral anæsthesia of the larynx.

Pressure upon or other injury of the recurrent laryngeal nerve is of all other nerve lesions the most frequent cause of aphonia. For example, aneurism of the arch of the aorta, tumours in the mediastinum, growths in the œsophagus, enlargement of the bronchial glands, great pericardial exudation, hypertrophy of the heart, enlargement of the thyroid body, fibroid induration, with pleuritic adhesions in the apex of the lung, may all lead to interference with the function of the nerve. This interference may be limited to one side, or it may be bilateral, in which case both of the vocal cords are immobile, and loss of speech is complete. Or again, only some of the nerve fibres may be implicated, while the function of others is unimpaired.

The cases naturally divide themselves into two classes—first, those in which the paralysis is bilateral; and second, those in which the diseased condition is limited to one side. We shall, in the first instance, refer to cases in which the paralysis is bilateral. This condition is comparatively rare, independent of central disease involving the motor nuclei of the pneumogastric, and the symptoms are by no means uniform, on account of the paralysis being incomplete, from some nerve filaments having escaped, and consequently being still able to conduct motor impulses. But cases are upon record where complete paralysis resulted from cancer of the œsophagus, aneurisms of the aorta and innominate, bronchocele, and suppurating glands. In such cases, when the whole trunk of the nerve is implicated, the vocal cords are immobile, and the voice is reduced to a whisper, but there is no dyspnœa. The normal movements of the cords during respiration are no longer observed, and the quantity of air passing into the chest ceases to be regulated in any way by the glottis. The patient is unable to cough or expectorate, and when an attempt is made to do so large quantities of air are forcibly expired under low pressure, and without any very perceptible effect. Such efforts prove very exhausting to the patient. The ultimate results in such cases depend altogether upon the cause of the paralysis. For example, if it is due to bronchocele, good results may be derived from the application of electricity to the interior of the larynx, and appropriate treatment of the bronchocele; whereas, if it be consequent upon the presence of an aneurism, or the result of cancer, the prognosis is most unfavourable; and should the paralysis involve the abductor muscles of the larynx, the dyspnœa consequent thereon may be so great as to imperil the life of the patient, and necessitate the opening of the trachea below the point of obstruction. As a matter of fact, in incomplete paralysis of the recurrent laryngeal the abductors are more commonly affected than the adductors.

The condition of the voice depends largely upon the extent to which the crico-thyroid and the thyro-arytenoid muscles are affected. When the abductors are paralysed, dyspnœa is the most marked symptom; whereas, when the adductors are involved, aphonia is complete, and there is little or no obstruction to inspiration.

I repeat, in paralysis of the abductors the cords remain in the middle line on attempted inspiration or phonation, and give rise to great dyspnœa; but, as a rule, expiration is free, and the voice is normal, or nearly so. It is, therefore, not necessary for us to consider such cases at present.

I will now illustrate what I have to say regarding unilateral paralysis by reference to the following cases:—The patient from whom this specimen was removed was first brought under my observation on account of the condition of the larynx, which I had been asked to examine by Dr. Perry. On laryngoscopic examination, the left vocal cord was found to be completely paralysed; and the right only responded slightly during phonation. Both cords were thickened, but there was no evidence of recent inflammatory changes. The larynx was unusually large in size, and somewhat rigid; and the chink of the glottis at its posterior part was never seen to exceed $\frac{1}{8}$th of an inch, even during deep inspiration. On physical examination of the chest, a large aneurism of the aorta was detected. Some time after I examined the patient, and while he was still in the hospital, the aneurism ruptured into the left bronchus. I will read to you now the report from the *post-mortem* journal.

"The cardiac area was found to be almost completely covered by the lungs, so that only a small portion of the pericardium was visible on opening the chest. There was a slight pericardial thickening over the tricuspid area, and the pericardium contained about two ounces of clear serous fluid. The heart was strictly normal, but there was marked atheroma and calcification of the aorta. The only fact worthy of note in respect to the condition of the lungs was the great injection of the air passages and lung alveoli by blood, so that the lower lobe of the left lung was completely solidified, and presented very much the appearance of pulmonary tissue in a state of red hepatisation, only that on the cut surface a large number of small dark red projections appeared, and, when these were pressed by the knife, a quantity of pure blood escaped. The upper lobe of the right lung was much in the same condition as the lower lobe of the left lung. On the lower aspect of the transverse part of the arch of aorta, there was an aneurism, about the size of a small orange. The opening into the aneurism was situated about 1$\frac{1}{2}$ inch above aortic segments, but the aneurism itself occupied the whole concavity of the arch, and rested against the left bronchus, into which it opened by a small aperture, about a size sufficient to admit a No. 1 catheter. The opening was immediately below the bifurcation of the trachea. The parts surrounding the aneurism were found to be greatly indurated, so that it was with great difficulty that a dissection was made of them. The left vagus nerve was found to have become so incorporated in the wall of the aneurism, that it was impossible to dissect the nerve strands from the connective tissue surrounding them. This adhesion of the vagus involved the trunk of the nerve above the point where the recurrent laryngeal nerve was given off, so that the latter nerve had also become obliterated. The nerves on the right side were described as normal."

I have still another specimen which I would like you to examine. The patient from whom this specimen was removed suffered during life from violent paroxysms of dyspnœa, and on laryngoscopic examination, the left vocal cord was found to be paralysed, so that during coughing, phonation, &c., the left cord remained fixed, while the right came as usual into the middle line. The aneurism was found to have arisen from the lower border of the transverse portion of the arch of the aorta, and was seen to project upwards to the level of the lower border of the thyroid gland. As you will observe in the specimen, the anterior aspect of the aneurism is traversed by the left innominate vein, which is almost embedded in its walls. The left pneumogastric nerve, as you will see, passes in front of the aneurism and of the aorta, and the recurrent branch, which is indicated by a piece of green glass, is firmly adherent to and partly embedded in the posterior wall of the aneurism.

In these two cases you have examples of impairment of function of the inferior laryngeal nerve, arising directly as a result of pressure of aneurisms, which are by far the most common cause of left motor paralysis. I will show you a patient presently who suffered from a similar paralysis, in which, however, the abductors, instead of the adductors were involved, so that the vocal cord, in place of being permanently retracted, were fixed in the middle line. In this case, however, the paralysis was associated with a syphilitic new formation in the right side of the glottis, and with enlargement of the cervical lymphatic glands, one of which must have pressed upon the nerve fibres supplying the abductor muscles on the left side.

This patient whom I now show you presented herself at the Dispensary for Diseases of the Throat four weeks ago. At that time she suffered from great dyspnœa, arising partly from the presence of a diffuse or ill defined swelling occupying the right side of the glottis, and extending from beneath the vocal cord to the level of the aryteno-epiglottidean fold, while on the left side the abductors were paralysed and the vocal cord remained in the middle line. You can, therefore, understand that the obstruction to inspiration was very considerable. On examination of the neck the alæ of the thyroid cartilage were found to be separated from one another to an unusual extent, and the thyroid gland, as well as some of the cervical lymphatic glands, were enlarged. The patient was at once admitted to the hospital, and as there was some suspicion that the neoplasm on the right side of the larynx was of syphilitic origin, constitutional treatment was adopted. Within a few days of admission it was found necessary to perform the operation of tracheotomy, in order to save the life of the patient. Until the present time the administration of mercury has been continued, and now, as you will see, the new formation in the larynx has almost entirely disappeared, the enlarged cervical glands are reduced in size, and the abductors have regained their functions: so that now not only can the patient breathe freely without the use of the tracheal tube, but when the tube is closed by the finger, and air permitted to escape through the glottis, her voice is loud and tolerably distinct. During last winter I had another patient under treatment, who presented almost exactly the same symptoms and laryngoscopic appearances as the one I have now shown you. The same treatment was adopted with a similar favourable result.

I may now describe to you shortly a case of special interest, which occurred in my practice about a year and a half ago, and one which I had considerable difficulty in understanding and explaining at the time; but unfortunately the patient died, and at the *post-mortem* examination the cause of the paralysis was easily demonstrated. I shall not trouble you with details regarding the symptoms of the case further than to state that they were very similar to what is usually observed in cases of paralysis of the left recurrent laryngeal nerve arising from mechanical pressure. But on physical examination of the chest and root of the neck no tumour, enlarged glands, or aneurism could be detected. The only deviation from the normal was slight depression of the right apex with comparative dulness and diminution of the respiratory murmur; the vocal fremitus was slightly increased, and a few crepitant and bronchial râles were heard on auscultation. Otherwise the thoracic organs were normal; and on laryngoscopic examination the right vocal cord was found to be immobile and fixed in the cadaveric position; but with this exception the larynx appeared to be practically normal. Nine months after I first saw the patient, and about sixteen months after the first laryngeal symptoms manifested themselves she succumbed to an acute attack of pneumonia; and on dissection, permission for which I received with great difficulty, the apex of the right lung was found to be the seat of well marked and advanced fibroid induration, together with firm pleuritic adhesions and cicatricial contraction.

The recurrent laryngeal nerve and trunk of the right pneumogastric were found to be embedded in the inflammatory new formation, so firmly, indeed, that dissection of the nerve from the surrounding tissue was not possible. This condition is of great interest, and illustrates how aphonia may result from consolidation of the lung and pleurisy, with ultimate cicatricial contraction of the inflammatory products.

Since this case came under my notice I have seen several other patients who have suffered from similar symptoms from the same cause, but in none of them has the laryngeal paralysis been so marked, nor have I had an opportunity, I am happy to say, of verifying my diagnosis by dissection.

It must be remembered as an anatomical fact, that while the left recurrent laryngeal nerve is most apt to be compressed by aortic aneurisms, on account of its winding round the arch of the aorta, the right recurrent laryngeal nerve is more likely than the left to be involved in inflammatory lesions at the apex of the lung.

In this lecture I have referred to paralysis of sensation or anæsthesia of the larynx, because it is not uncommonly associated with aphonia; but when this is so, the loss of the power of phonation is not dependent upon a lesion of the superior laryngeal, but has its origin in the nerve nuclei or fibres connected with the inferior laryngeal nerve. At the beginning of this lecture, I indicated to you that neurosis of motion may take the form of spasm or perverted power. To such conditions I shall refer in a future lecture.

I have now, gentlemen, fully considered aphonia or loss of speech, arising from lesions of the nerves connected with the organs concerned in the production of vocal sounds. At next lecture I will draw your attention to aphonia arising from mechanical interference with the action of the arytenoid cartilages, or of the movements of the vocal cords, also, to interference with speech as a result of the action of certain toxic agents, and to the condition described under the term myopathic aphonia; and I hope, at the conclusion of next lecture, to give you some clear ideas in respect to the treatment which should be adopted in the different forms of the disease which we are at present considering.

CURRENT TOPICS.

Notes from Vienna.

Arthrotomy Performed on Old Dislocations. — By Prof. C. Nicoladoni, Innsbruck.

After a few preliminary remarks, Dr. Nicoladoni remarked: —I will relate my experience in reference to dislocation of the elbow-joint, which may be taken as a type of this injury, and afterwards state what seems to follow from my remarks.

A. T., aged 16, son of a peasant from Faver, in South Tyrol, was admitted to hospital on the 23rd May, 1884. Eight months previously he had fallen from a tree, injuring his left arm. Subsequently it became much swollen, the limb being extended. No attempt was at this time made to reduce the dislocation.

On admission, patient appeared a healthy, moderately well developed boy. Only slight motion was possible at the elbow-joint. The upper and forearm were nearly parallel, the latter being rotated outwards. The internal supra-condylar ridge was absent. The margin of the trochlea could be seen in its whole circumference. The external condyle was covered by the projecting head of the radius. The olecranon was displaced outwards, the triceps tendon being correspondingly displaced. Pro- and supination were possible.

The diagnosis was—incomplete lateral luxation of both bones of forearm. The internal condyle, which was torn from its natural position, was interposed between the bones of the upper and forearm.

Having regard to the youth of the patient, and mindful that injuries to the lower epiphysis of the humerus are most important in reference to the growth of the bone, I determined to attempt reposition of the bones without sacrificing any part of the joint. It seemed that if I removed the internal condyle from its position between the bones of the upper and forearm, I could easily push the forearm into its proper position.

Arthrotomy was performed on 27th May. An incision 8 cm. long was made in front of the margin of the trochlea. This brought the condyle to view pointing downwards. Its ruptured surface had formed strong cartilaginous union with the trochlea. The condyle was then removed, and the soft tissues separated from the anterior surface of the trochlea. An attempt at reposition at this point failed. Consequently a longer incision was made on the outer side of the joint. A small piece of bone, part of the external condyle, was removed, and the soft tissues were removed from the humerus and radius. Reposition of the bones was easily effected, after an incision had been made through the tendon of the triceps, and the olecranon freed from adhesions to the posterior surface of the humerus. The elbow-joint could now be flexed and extended, and the arm pro- and supinated. It was seen that the soft parts had been elevated as far as 2 cm. beyond the limit of the lower epiphysis of the humerus.

Fever was present for five days following operation. During the first week there was profuse suppuration. After the third week passive motion was practised.

On 19th July the patient was discharged with flexed elbow. Active motion could be made for as much as from 35° to 40°. Pro- and supination were possible. The duration of treatment was 53 days. The patient was instructed to accustom his arm to do work.

Nine months after dismissal I received a note informing me that he could flex and extend the arm, and could pro- and supinate it, though not very satisfactorily. He was able, in spite of weakness in the limb, to continue at his work.

This case teaches that after complete separation of all soft tissues surrounding movable bodies in a joint, it is possible to replace the bones in their normal position. It is especially to be observed that the tendons of the brachialis anticus and biceps inserted on the coronoid process and radius are very tightly stretched, and it is only after they have been drawn forwards that reposition is possible. Further, we see that although the lower epiphysis of the humerus was freely stripped of soft tissues, and a certain amount of suppuration was present, there was no loss of nutrition in the joint. For a time there must have been a limited supply of blood to the part. Thus, in order to set free a stiff joint we should not fear to separate with some degree of freedom the soft tissues from their attachments to the bones beneath.

These views received confirmation in the following case:—

A. D., 41, a farmer, presented himself at the clinic six months after posterior dislocation of the bones of the forearm. The injury was caused by a bundle of hay falling on the extended limb. No attempt had been made previously to reduce the deformity.

The patient was a tall, well formed man. The right upper limb was extended. Active motion was impossible, passive only to a small extent. Slight pro- and supination could be made under passive motion. The usual signs of this dislocation were present, except that the olecranon stood unusually high above the limit of the condyle.

Arthrotomy was performed on 23rd February, 1885. Two lateral incisions were made, each 16 cm. in length. One over the outer condyle in front of the head of the radius. The soft tissues were separated from the anterior and posterior aspects of the joint. In front they were easily removed from the cartilage lying beneath, but posteriorly there was greater difficulty. On the internal aspect of the joint a similar incision was made, and the soft parts separated as before. The separation of the soft parts was more successful on the posterior aspect, after the anterior surface was freed, because then the forearm could be pressed still farther backwards, and the olecranon thus freed from its attachment to the humerus.

A further difficulty now arose before the forearm bones could be replaced. The great sigmoid cavity of the ulna was filled with hard cicatricial tissue. After separation of half of the posterior insertion of the annular ligament of the radius by way of the external incision, the other half being separated from the internal incision, this cicatricial tissue was removed. The elevator and flat knife were made use of for this purpose.

Hæmorrhage was arrested by ligature. Two drainage tubes were inserted. By placing the arm at a right angle the shortened triceps lay tightly stretched along the posterior surface of the humerus. The space behind the lower end of the humerus was drained by an incision over the point of the olecranon. Sutures and bandages were then applied.

After two days the patient was able to walk about the ward. He was discharged four weeks after operation, the wound being almost closed.

At that time he was able to pro- and supinate the arm. Flexion was present only to a slight extent. Passive extension and flexion could be carried out, but beyond a right angle flexion was painful. The motions of the hand and fingers were perfect. Unfortunately, patient would not remain in hospital for the practice of gymnastics of the limb.

This case is remarkable for the ease with which the capsule of the joint and the superficial soft tissues could be elevated from the flexor surface of the joint, and also for the perfect state of the cartilages. On the anterior surface of the trochlea, the cartilages had a somewhat lustreless appearance, and showed signs of degeneration, but otherwise they were of normal appearance.

An important feature is the state in which the great sigmoid cavity was found. It was a surprise to find it filled with hard cicatricial tissue, thus rendering it unfit to contain the cartilaginous surface of the humerus. This circumstance must certainly explain why, in comparison with other joints, it is only for a short time after dislocation of the elbow joint that simple means of reduction are successful. It also explains why it is that even when such means are successful in effecting reduction in old dislocation, there is still much to be desired before the limb can be said to be in a thoroughly useful condition.

I reduced, *e.g.*, two years ago, a posterior dislocation of the elbow joint five weeks after its production. But even to-day the limb is not thoroughly useful. It grates when flexion and extension are attempted, and after being used for a time it becomes painful. Last July I replaced a similar dislocation four weeks old, and at the end of September the patient could not perform complete flexion and extension.

The tissue that was found filling up the great sigmoid cavity arises probably from fragments of the torn capsule of the joint, since it was closely connected with the posterior extremity of the orbicular ligament of the radius.

I lay much stress on the state of the sigmoid cavity, because from it we get a hint as to the operative procedure to be adopted in such cases.

In 1876 Volkmann attempted arthrotomy on a dislocated femur. The dislocation was at first on the perinæum, and had become dislocation on the ilium. (Incision according to v. Langenbeck.) It was three months old, and Volkmann was forced, owing to insuperable difficulties to perform resection of the joint.

I have also a similar case to record. On 28th November, A. S. was admitted suffering from dislocation of the femur on the ilium, which had been present since 4th October preceding. An attempt at reduction fourteen days after the accident was unsuccessful, as also was one four weeks later.

On 29th November and on 13th December I attempted, with the help of anæsthesia, to reduce the dislocation, but without success. It was possible, however, to move the head of the bone to the border of the acetabulum, but it could not be rotated into that cavity.

I determined to open the joint, believing that the soft tissues could be easily removed. Arthrotomy was performed on 17th December, 74 days after the injury.

The incision was according to v. Langenbeck, in the axis of the limb, more than six inches in length. The head of the bone lay immediately beneath the gluteus medius muscle. It was covered by a hard thick new capsule, 2-3 mm. in thickness. On the deeper surface of this was a membrane like that of a synovial sac, closely covering the head of the bone. On division of this the bone was reached. On the innominate bone, immediately superiorly to the ischiadic foramen, there was a large cavity lined with an irregular rough material of a cartilaginous nature.

After separating carefully all soft tissues from the anterior and posterior surfaces of the trochanteric region, the head of the bone could be elevated. It was seen that the acetabulum was filled with hard material, cartilaginous in nature, and so closely associated with the cartilage of the joint that their separation was given up after several fruitless attempts.

I proceeded to the operation of resection, for which I had previously been prepared, believing that even this would give a better result than if the limb were left in its dislocated condition.

For the first 20 days the patient was afebrile. At the end of the third week fever appeared, and suppuration arose in the cavity of the acetabulum. Several counter-openings in the inguinal region gave outlets for the pus. It was only in March that the patient could be said to be convalescent.

This case, as well as that of Volkmann; and the one where the sigmoid cavity was occupied by cartilaginous material, teaches us that in the case of old dislocations, that part which was previously the acetabulum deserves special attention, because here we must prepare a place for the reception of the head of the bone.

I believe that in these cases the acetabulum should be exposed, in order to remove from it all extraneous material, such as fragments of the capsule and muscular fibres. For this purpose the incision according to Schede is the best. It must, however, be sufficiently prolonged to give the operator sufficient room. Even after relatively short duration of the dislocation, adhesions will be met with. Similar conditions in the shoulder joint will be corrected in a like manner.

It is evident from the above remarks that the time is past when all old dislocations will be remorselessly dealt with by resection. The question now is to determine according to which method we will perform arthrotomy. As long as the cartilaginous surfaces of the joints are healthy—and this is found as long as a year after the injury in the case of the elbow joint—we must give the patient the chance of a useful limb by an operation, in comparison with which that of resection offers no analogy.—*Wien. Med. Wochenschrift.*

NOTES FROM BERLIN.

LITHOLAPAXY PERFORMED DURING ANÆSTHESIA OF THE BLADDER AND URETHRA BY COCAIN.—By Dr. P. Bruns, Tübingen.

I had lately an opportunity of performing litholapaxy during anæsthesia induced by the injection of cocain into the bladder and urethra. This having been followed by surprisingly good results, I have felt myself justified in making known my observations, more especially as I have not heard of other similar experiences. I do not doubt that they mark another step to the attainment of a bloodless method of operating for stone.

The patient was a man of twenty-one years, who had suffered for four years from symptoms of stone. During this time a correct diagnosis of his condition had not been made. Examination revealed a hard rough stone of 2·5 cm. in diameter. He also suffered from severe purulent catarrh of the bladder, alkaline urine, high evening temperature, and notable disturbance in his general health.

Owing to the small size of the stone and large calibre of the urethra, I decided to remove the stone by the operation of litholapaxy. Having disinfected the bladder by a solution of borsalicyl, I injected 40 grains of a 2 per cent solution of cocain into the bladder, and also 10 grains into the urethra. In order to bring this solution into contact with all parts of the bladder, the patient must assume by turns the prone, supine, and side positions. Six to eight minutes after having done this, I filled the bladder with 150 grains of a solution of borsalicyl, and then introduced the lithotrite. On attempting to crush the stone, it proved so hard that repeated gentle blows of the hammer were necessary to tighten the screw. The stone and its fragments were seized and crushed thirty-three times, taking twenty-two minutes in performance. During this time the necessary manipulations were absolutely painless, the patient asserting several times that he scarcely felt the movements of the instruments. Previously he had suffered severely from the introduction of a catheter.

During the subsequent removal of the debris by means of the aspirator, it was noticed that anæsthesia was not complete, the patient complaining of pain each time the bladder was pumped full. Thirty minutes had now elapsed since the cocain was injected. Finally, a small quantity of a 10 per cent solution of emulsion of iodoform-glycerine was left in the bladder to prevent possible injury to its mucous membrane by minute fragments of stone. A catheter was not left temporarily *in situ.*

The stone proved to be a pure oxalate or mulberry calculus, having a rough surface. The debris weighed 4 grains.

The further course of the case was most favourable. The patient rose from bed on the third day after operation. The pains on urinating and on movement of his body, which previously had been very severe, were now altogether absent. Eight days later, by his own wish, he was dismissed from hospital, the catarrh of the bladder having somewhat improved. A final examination showed no trace of stone in the bladder.

These observations show that by the employment of 1 gr. of cocaine, complete anæsthesia of bladder and urethra is produced. The anæsthesia lasts half-an-hour, so that the manipulations necessary to remove an oxalate stone do not cause the slightest pain.

This fact seems to me to give remarkable support to the operation of crushing, and is suited at the present time, in which, in many quarters, the justification of the operation is denied, to throw additional weight into the balance in its favour. I believe that in the present state of the practice of lithotrity and lithotomy the unreserved rejection of the operation of crushing is not justifiable, and I do not hesitate to assert that in suitable cases the bloodless and painless removal of stone by the natural channel, and at one sitting is justified. Most tumours of the larynx are similarly removed by the natural opening.

The principal objection to crushing—viz., that the introduction of antiseptics into surgery gives the operation of cutting a decided advantage, I cannot allow. There is no method of cutting in which antiseptics can be thoroughly applied. If the bladder be healthy and the urine free from deleterious constituents, it may be easy to keep the wound aseptic. But, as is often the case, if there be purulent catarrh of the bladder, with alkaline degeneration of the urine, there is great probability of infection of the wound by the purulent and unhealthy urine. In the latter case there is no method known by which we can rely on maintaining asepticity. This applies also noticeably to the modern "high section" of the bladder. Perhaps in the future, by suture of the wound in the bladder, we may obtain union by first intention, and thus derive the full benefit from antiseptics.

The other objection, that by crushing, fragments of the stone remain in the bladder and form nuclei for future stone, has not so far been justified. By the use of the aspirator the smallest fragments are detected, which would escape examination by the sound. There is no better proof that the bladder is empty than that repeated filling and emptying by the aspirator do not bring fragments to view. As we sometimes see formation of stone after the cutting operation, it is evident that retained debris is not the only cause of its re-appearance.

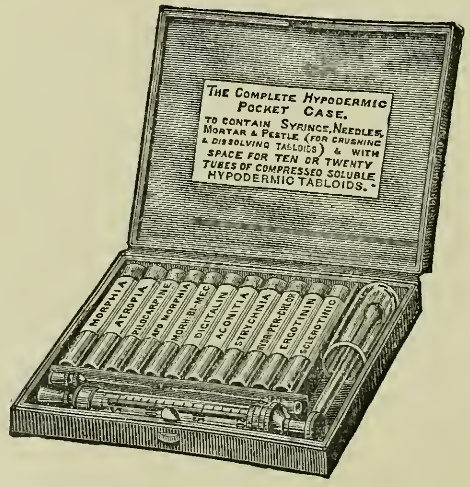
Were I fully to discuss the crushing operation, of which I have to thank for a number of favourable cases, it would almost appear as if I were guilty of an anachronism, as only recently this operation has been consigned to a place in the history of surgery. Is this really to be the future of lithotripsy, which has hitherto been described as "one of the greatest achievements of this century"? I do not believe it. Among surgeons who have had the greatest experience of operating in this region, the opinion is unanimous that crushing is the operation to be performed in the great majority of cases, and cutting will be required only occasionally—viz., in children, and in cases with very large stones. Sir Henry Thompson raises this question in his latest work, whether lithotripsy is to be looked on as the only operation in the future for stone, or if there are cases for which the cutting operation is preferable.

In order rightly to appreciate this enquiry of Sir H. Thompson, it should be remembered that he has performed altogether 782 operations for stone in adult males. Of these, 672 were cases of lithotripsy, and 110 (= $\frac{1}{7}$th of the total) were lithotomy. Of late years, since the exclusive employment of litholapaxy, of 125 cases, only 4 (= $\frac{1}{30}$th of the whole number) were cut. The remaining 121 were operated on by crushing at one sitting. Of these 121 only 4—*i.e.*, 3·3 per cent have died. On the ground of this enormous quantity of material, Thompson is convinced that "crushing can be performed with less danger to life than any cutting operation."

In carrying out the operation of crushing, I should like to recommend the production of local anæsthesia by cocain, instead of having resource to general anæsthesia, the latter being in some cases not devoid of danger.—*Berliner Klinische Wochenschrift.*

University of Glasgow—Medical Examinations.—The clinical part of the final examinations for the degrees of M.B. and C.M. commenced on Monday, 8th June last, and was continued on two or three afternoons of each week, until the end of the month, 9 or 10 gentlemen being examined at each sitting. During the first week the examinations were visited by Drs. Bristowe and Barnes, of London, the well known physician and obstetrician. We understand that about 116 gentlemen have given in their names for examination, of whom 8 or 9 come under the old regulations. The examinations in operative surgery will take place during the first week of July, and the written part of the "final" begins on the 13th, after which about a fortnight of oral examining commences on Thursday the 16th. It will thus be seen that the medical student of the present day has no easy task before him, and our readers will easily understand the remark which we have heard more than one examiner make—viz., "I would not care about going in for the thing again." This is precisely our own feeling in the matter, and, in the face of the existing examinations, which are sufficient to tax the energies of the most brilliant, we must confess to being a little doubtful of the practical wisdom of adding more compulsory subjects to the curriculum, as the General Council has recently recommended.

We received the accompanying illustration of the Hypodermic Syringe, with Tablets, noticed in last issue, too late for insertion there.



Glasgow Obstetrical and Gynæcological Society.—For some considerable time it has been felt that it would be well to have a special society in Glasgow for the consideration and discussion of questions appertaining to the practice of midwifery and the diseases of women and children. The societies of this description in Edinburgh and London are practically beyond the reach of the ordinary practitioner, who cannot leave his practice even for a few hours without some trouble and anxiety, and yet it is the general practitioner who usually meets with the most interesting and instructive cases, and who must be encouraged, for his own good and that of science, to bring such under the notice of his professional brethren.

We have heard Glasgow evil spoken of as a city whose medical men were distinguished more for love of money than love of science; but the flourishing condition of its scientific associations, and the fact that the demand for a new society for the advancement of obstetric knowledge has emanated from several practitioners seems to contradict such a statement. A few months ago a number of gentlemen on the south side of the river set the movement agoing, and a preliminary meeting was held in the Athenæum over which Professor Leishman presided. It was then determined that such a society should be formed, and a committee was appointed to draw up a constitution and rules. Another meeting was held on 17th June to receive and consider the report of this committee. Dr. W. L. Reid was called to the chair; and, after being discussed and amended, the constitution and laws then presented were adopted. The points about which there was most difference of opinion were, the name of the society and the appellation of those who compose it. Some wished the name "Obstetrical," and others argued that "Gynæcological," as now commonly used by the Germans, was the better, as it included both midwifery and the diseases of women. At last a suggestion made by Dr. Leishman in a letter which he, being out of town, had sent to Mr. Stuart Nairne, Interim Secretary, was adopted, that the name should be the "Glasgow Obstetrical and Gynæcological Society." It was proposed that the individual title should be "Member," but as both the Edinburgh and London Societies had chosen that of "Fellow," the meeting resolved to hold to it. The object of the Society is to be "the promotion of science and art in connection with midwifery and the diseases of women and children," and great stress is to be laid on the importance of bringing up fresh specimens and allowing them to be discussed then and there. That this will cause inconvenience and disappointment to readers of papers is not unforeseen; but, as it is considered that it will best serve the purpose of the Society, members will be willing, if necessary, to postpone the reading of their communications.

The meetings are proposed to be held in the Faculty Hall, St. Vincent Street, at a quarter to eight, on the evening of the second Wednesday of each month, excepting July, August, and September.

The meeting then proceeded to the election of officers, when the following gentlemen were appointed:—

Honorary President, . . .	PROFESSOR LEISHMAN.
President, ...	DR. W. L. REID.
Vice-Presidents, .	DR. SAMUEL SLOAN, PROF. A. WALLACE.
Treasurer, ...	DR. ROBERT POLLOK.
Council, .	DR. HALKET, DR. BELL, DR. M. CAMERON, DR. G. A. TURNER, DR. PARK, DR. MARSHALL.
Secretary, ...	MR. J. STUART NAIRNE.

Obituary.

SURGEON JOHN M. YOUNG, INDIAN MEDICAL SERVICE.

In the *British Medical Journal* of 30th ultimo, there appeared, amongst the Indian Medical Service News, a notice of the death of Surgeon John More Young, M.A., M.B. (Glasgow), M.R.C.S. By his decease the medical profession has lost a most promising member, a man of rare abilities, and a conscientious worker.

Mr. Young, on the completion of his Arts course at the University of Glasgow, joined the medical classes, and from that time on he was decidedly the first man of his year. During the epidemic of enteric fever which prevailed in the Hillhead district of Glasgow in 1878, he, in common with many university students, suffered. From this cause, that winter session was lost to him as regards attendance on his classes; but in the following year he returned to his work, to which he applied himself with his accustomed enthusiasm, and with the same success.

He graduated M.B. and C.M., with highest honours in 1881, and during the summer term of that year he was House Surgeon, and in the following winter, House Physician, in the Western Infirmary. From the Hospital he proceeded to Vienna, where he devoted some time to the study of the various specialties, and on returning home, with the intention of gaining experience of private work, he was engaged for a time as assistant at Rothwell, Northampton. While there, he decided to enter the Indian Medical Service, and at once set about preparing himself for the necessary examinations. As a preliminary, he became a member of the Royal College of Surgeons, England, and shortly thereafter, he headed the list of the successful candidates for the Indian Medical Service. At the close of the session at the Army Medical School, Netley, his student career was fitly crowned by an achievement seldom, if ever, equalled. In the *Lancet's* report of the prize distribution ceremony, held on Monday, 6th August, 1883, it is remarked that "a notable feature of the present session has been, that all the prizes, with a single exception, have been carried off by one of the surgeons on probation, Mr. J. M. Young of the Indian Medical Service. . . . In handing to Mr. Young, in succession, the Herbert, Martin, Parkes, and Montefiore medals and prizes, Sir Galbraith Logan made some happy references to the special advantages that might be hoped for to the public service from the superior ability which Mr. Young had manifested in the various branches of professional knowledge which the rewards represented."

He died of hydrophobia, which resulted from a dog licking his hand, on which there was a scratch, on the 28th April last, in his 28th year, at Gorakhpore, where he had been stationed for some time, and where, at the time of his death, he was Officiating Medical Officer to the 5th Native Infantry.

J. W. D.

REVIEWS.

Insanity and Allied Neuroses: Practical and Clinical. By George H. Savage, M.D., &c. London: Cassell & Company. 1885.

Lectures on Mental Disease. By W. H. O. Sankey, M.D., &c. Second Edition. With Illustrations. London: H. K. Lewis. 1885.

We think it is Mr. Gladstone who somewhere compares small religious sects to little pools separated from the great ocean, which soon become, because of their isolation, stagnant and offensive. It is necessarily much the same in medicine in the case of that specialism of the narrower sort which is becoming profitable and fashionable, and is not, as specialisation should be, a result of the evolution of the art, and therefore a sign of its progress, but rather a result of the fact that "folk maun dae something for their bread," and therefore neglect the broad pastures to dig their little "tater patches." The books whose titles are given above are concerned with a specialty of the broadest and most comprehensive character, and there should be no danger of its practitioners suffering from the restricted scope which must surely worry the man who devotes his life to the cultivation of a few inches of mucous membrane. Yet, as a specialty it has suffered much from its divorce from the general work and interests of the profession. It has suffered in its own development, and in the loss of both public and professional interest. Its practitioners are concerned more with business than with medicine, and practise apart, freed from the light and competition which influence so powerfully for good the general practitioner or the hospital physician or surgeon. Their field of action, the asylum, is still too much the old madhouse, and too little the hospital. Their scientific and medical results, with few exceptions, and making all due allowance for the difficulties of the subject, are poor, considering their opportunities and the abundance of pathological and clinical material at their disposal.

The result of this unnatural divorce on the general profession is, that there is great apathy or indifference in regard to all its duties and interests in connection with the insane; while the ignorance of the bulk of its members of even enough knowledge of the subject to justify their discharging the important social and medical duties which the legislature has entrusted to them in connection with the committal of patients to asylums, is matter of notoriety. The profession, with characteristic indifference to its duty of influencing directly and effectively public opinion and action in matters sanitary and medical, has been content to be led in the recent public outcry for lunacy reform. Fortunately, there are significant signs of a change for the better in the attitude of the profession to this whole question as evidenced, amongst other things, by the recent decision of the medical council in reference to mental disease. The student must now, if the licensing bodies do their duty, obtain some knowledge of mental disease, and, as we are of those who believe that he is already over lectured, we earnestly hope that he will be saved attending yet another course of lectures, but rather directed to obtain his knowledge

—real knowledge, not mere cram—from clinical demonstrations and studies, with the help of a good text-book. To obtain easily the first will be a considerable difficulty to the greater number of students, and will only be made sufficiently easy when a greater reform in lunacy than the one presently occupying public attention is effected; and that is the bringing of the profession into closer relations with the treatment of the acute and curable forms of insanity through the medium of hospitals for acute cases, officered and related to centres of population in the same way as other hospitals are.

Good text-books are numerous, and in their recent multiplication give still another indication of the awakening interest in the subject. It is only about a year since we referred, in these columns, to the excellent manual of Dr. Clouston which dealt with mental disease in its clinical aspects, though, indeed, most treatises on insanity are, from the state of knowledge on the subject, compelled to be more or less clinical in their arrangement and treatment of it.

Dr. George Savage contributes to the Messrs. Cassell & Company's series of clinical manuals for practitioners and students, a very practical and concise manual, the very type, so far as size and style are concerned, of a handy book of reference and study for the student and general practitioner. who will find in it clear and well put statements and clinical pictures of the various forms of insanity, and its allied neuroses, such as epilepsy and hysteria. These diseases are, however, treated briefly, and in the way they appear to an asylum physician. The book is full of paragraphs of considerable practical importance, and we constantly come across sentences of a very suggestive kind, where the result of a full experience is tersely put. The general practitioner will find the chapter dealing with the predisposing and exciting causes of insanity helpful in dealing with the physical and moral education of children of neurotic temperament. The book includes much useful information about the legal relationship of the insane and the certifying of lunatics. Yet, in spite of all this, we must confess to a feeling of disappointment, helped to begin with by the get up of the book, which in its size, blue covers, and badly stained blue edges, suggests a handy student's book, while the reputation and known ability of the author led us to form a probably too high estimate of the kind of work to be expected. This was intensified by reading in the preface, "I have for some time felt that my period of observation without registration must terminate, and that I owe it to my position as physician to a large hospital, to give the younger members of my profession the results of my more than twelve years' experience in Bethlem." There is really not evidence of much necessity for this registration, and we feel that other twelve years devoted to digesting the results of the registration, would enable Dr. Savage to give us a book more worthy of him and his subject; in saying this, we do not in the least overlook the value of the book in its own way. In dealing with pathology, this want of fulness and comprehensive treatment is very noticeable. A page and a half for instance contains all he has to say about the pathology of acute mania, and what he does say is of a rather negative character.

We turn with great pleasure to the second edition of Dr. Sankey's *Lectures on Mental Disease.* The first part of the book, which is about a fifth of the whole, treats of mental science or psychology, and in reference to the necessity for dealing in some fashion with this subject, we are at one with Dr. Sankey when he says—"In other medical treatises the pathologist may assume that the physiology of each organ, the diseases of which he is about to describe, is already acquired by the student. This cannot be said to be the case when the disease is mental." So, because of this known ignorance, and because the subject is a very wide one, and is discussed by writers from many different standpoints, Dr. Sankey treats of it in the interest of the student in three sections—Mental Products, Mental Processes or Statics, and Mental Processes or Dynamics, and in discussing these subjects, he quotes largely from Lewis, Bain, and Spencer. Quite apart from controversy as to systems of philosophy, there can be little doubt that a system of psychology, to be of use to medical students, must necessarily be based very much on the lines of these writers, and in the book before us this is recognised.

While we have read this portion of the book with both pleasure and profit, yet we think the purpose of the author might have been better served by a much briefer statement of it. Dr. Savage goes to quite the opposite extreme, for he omits all reference to normal psychology, because, as he says, "to my mind, the time has not come for the rearrangement of our ideas on mind and its physical basis." The difference between the two authors in this way of considering normal psychology, will give some idea of the nature and scope of the two works.

Dr. Sankey throughout aims at a broad and philosophical treatment of mental disease. This is noticeable in his classification, which appears to us about the most scientific possible, considering the present state of our knowledge. He divides mental disease into two great divisions—viz., idiopathic and symptomatic, subdividing the former into pathological, including ordinary insanity and general paresis, and developmental, including idiocy and senile decay. In this way he gets rid of the numberless varieties which owe their existence to some prominent symptom, such as kleptomania, erotomania, dipsomania, &c., &c., and includes them all under the name ordinary insanity. The evolution of this ordinary insanity he traces through various stages, and there we meet with our old friends melancholia, mania, and dementia. At first it might appear that there was but slight gain in including these under the term ordinary insanity; but this is not so, as the gain to the student in referring them to a broad class having much in common, is very great indeed. Dr. Sankey devotes about 33 pages to the discussion of the Etiology and Pathology of Ordinary Insanity, and the same to its Treatment, and a little more to the Legal Relations of Insanity.

The section on treatment is judicious and quite up to the present notions of treatment in asylums. An important part of this is the removal of the patient to, and care in, an asylum, and as might be expected, there is a plea for private asylums. We think asylum treatment is overrated, and that after a period, longer or shorter, as the case may be, asylums help, by their machinery and life, to expedite the progress of the patient towards dementia. While, as to private asylums, we should like to see a few of the best preserved, but to them all there is the, to us, fatal objection that the liberty of the subject is placed in the hands of those who are most interested in depriving him of it.

Altogether we have read Dr. Sankey's *Lectures* with satisfaction and pleasure, and we can heartily recommend them to the attentive study of those students who care for a broad and intelligent study of a difficult and too obscure subject.

Transactions of the New York State Medical Association for the year 1884. Volume I. Edited by Austin Flint, Jun., M.D. Yew York: D. Appleton & Co. 1885.

This is a handsome and well filled volume, and its publication augurs well for the future of the New York State Medical Association. The papers published are very numerous, and, as is usual in "Transactions," on very various subjects. It would be difficult to speak of one more than the other, but it may interest our readers to know what this new American Association is. It is an Association which is composed of gentlemen formerly members of the Medical Society of the State of New York, but who severed themselves from that Society after it adopted what is termed the "New Code" of medical ethics, as opposed to the "National Code." The "New Code," so far as we can gather, countenances regularly qualified medical men holding consultations with those who are not regularly qualified, or who hold no qualification whatever. Under these circumstances we heartily sympathise with the new Association in their efforts to maintain the dignity of our common profession, and we hope that the handsome volume they now issue is an earnest of success. The following sentence, from a speech by Dr. Austin Flint, Jun., will give some idea of the question at issue:—

"The disgust and alarm of the upholders of the national code, however, were brought to a culmination by the appearance of the President of the New York Academy of Medicine, who, in a long speech, advocated the breaking down of the time honoured barriers which have heretofore separated the regular profession from charlatans."

Not the least interesting part of the volume is the excellent code of medical ethics, the article of which, on advertising, we may here partially quote:—

"It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or hand bills, inviting the attention of individuals affected with particular diseases. . . . These are the ordinary practices of empirics, and are highly reprehensible in a regular physician."

We wish the new Association every success.

Die Krankheiten der Frauen: Aerzten und Studirenden geschildert. Von Dr. Heinrich Fritsch, o. Professor der Geburtshülfe und Gynækologie, Breslau. Zweite umgearbeitete und vermehrte Auflage. Braunschweig: Friedrich Wreden. 1884. Pp. 453.

In the number of this *Journal* for September 1882, we published a long review of the first edition of this Manual of the Diseases of Women by Professor Fritsch, now of Breslau, then of Halle. This edition is enlarged by 37 pages, and contains five more engravings, the most of the extra space being taken up by chapters on Menorrhagia, Sterility, and Affections of the Mamma. Of the additional matter we can only speak as we did of the work in general—in terms of great praise.

We observe that, in speaking of diseases of the bladder and the urethra, the author makes a new suggestion. Where inability to retain urine exists from defective action of the sphincter, he recommends the removal of a little piece of the vaginal mucous membrane in the neighbourhood of the sphincter, and bringing the edges together with sutures. When this heals, contraction of the urethra above takes place, and, as experience shows, gives quite as good results as the more formidable operation for removal of part of the urethral wall.

We recommend this manual to those who wish to possess in little space a very fairly thorough exposition of modern gynæcology.

Hydatid Disease, with Special Reference to its Prevalence in Australia. By JOHN DAVIES THOMAS, M.D. (Lond.), F.R.C.S. (Eng.), Physician to the Adelaide Hospital. London: H. K. Lewis. 1884.

Hydatid Disease of the Lungs. By J. DAVIES THOMAS, M.D. (Lond.) London: H. K. Lewis. 1884.

Uber Milz-Echinococcus und seine Behandlung. Eine Monographie. Von DR. FRIEDRICH MOSLER, ord. Professor und Director der Med. Klinik in Greifswald. Wiesbaden: J. F. Bergmann. 1884.

THE three works, whose titles are given above, are interesting inasmuch as they deal with a form of disease which is met with comparatively rarely in this country, but which occasionally crops up under very unexpected conditions. To any who care to get some idea of a disease which is very common at the antipodes, we recommend a perusal of Dr. Thomas' two little works, which are pleasantly written, and contain much interesting information. The first named volume deals with the general subject of hydatid disease. The first half treats of the life history of tapeworms in general, and of the echinococcus in particular. It is much the least original part of the volume, and is largely illustrated with copies of Leuckart's woodcuts. Parts IV, V, and VI are more particularly the author's own, and deal with the geographical distribution of the disease, its prevalence in different countries, and the measures to be adopted for preventing its spread. The second work, by Dr. Thomas, contains a most interesting and valuable account of the symptoms, physical signs, and treatment of hydatids of the lungs; and its value is enhanced by the careful record of cases given at the end. Dr. Thomas has succeeded in producing two excellent monographs, and we have much pleasure in recommending them to our readers.

Mosler's monograph contains a careful record from his own practice of a case of hydatid cyst of the spleen, and this is followed by a careful consideration of the whole subject. After giving exhaustive tables, showing the relative frequency of hydatids of the spleen, solitary, and along with other organs (30 cases of solitary, and 36 of multiple hydatids), he discusses in great detail the symptoms, progress, diagnosis, and treatment of the affection. Altogether, in the three works to which we have referred, we have a valuable addition to the literature of this department of medical science.

Clinical Lectures. On Scrofulous Neck, by T. CLIFFORD ALLBUTT, M.D.; and on the *Surgery of Scrofulous Glands*, by T. PRIDGIN TEALE, F.R.C.S. London: J. & A. Churchill. 1885.

THIS little volume contains two clinical lectures by an eminent physician and a leading surgeon on a very common affection, and it is a good illustration of how the resources of medicine and surgery may very often be most usefully combined in the effort to eradicate disease. The object which the authors have in view is to urge the necessity of completely removing every caseating and suppurating gland from the neck as the only means of effecting a speedy and radical cure. We completely agree with everything they say, and would recommend every practitioner to peruse the lectures.

MEETINGS OF SOCIETIES.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

Session 1884-85.

Meeting IX.—12th May, 1885.

The Vice-President, Dr. James Finlayson, *in the Chair.*

Professor M'Call Anderson showed a case of intra-cranial syphilis, and gave the following notes of the clinical history:—

The patient, a clerk by occupation, and 37 years of age, was admitted into Ward II on the 10th of March, 1885. His family history is good, but he was always considered a delicate child, and after leaving school, while employed in a coal-pit, he contracted inflammation of the right lung. Nine years ago he became a clerk, but his employment did not involve very close confinement.

About six months before admission, on rising from the sofa he felt a curious sensation in his head; his face was drawn to the left side, and his right arm was twisted up behind him. He was able, however, to walk to the door and call for help, but immediately thereafter he fell to the ground unconscious. His friends said the attack lasted for about 10 minutes, during which time he "frothed at the mouth;" the face was drawn to the left side, and the right side of the body was convulsed. On regaining consciousness he felt exhausted and inclined to sleep. Five weeks after this he had a second fit which was not severe. On this occasion he fell suddenly to the ground, was convulsed on the right side, but retained consciousness. After that he had attacks daily until three months ago, when, under the influence of treatment, they ceased, and have not recurred. Before each attack he had a feeling of giddiness for some time, and immediately preceding it a curious sensation in the palm of the right hand. Nearly from the first there has been constant trembling of the right hand, and for three or four months the right arm and leg have been gradually becoming weak. Almost from the first, too, he has been troubled with attacks of pain limited to the right side of the head, which soon became very intense, and which continued for hours, but for the last three weeks they have not been so severe.

For about three months there has been pain in the right hip joint which, however, is not limited to the joint, but extends a little way up the side. For some weeks, too, he has been troubled at times with giddiness, and with dimness of vision, which appeared to him to be limited to the right eye. In consequence of this, on more than one occasion he came into collision with vehicles passing him in the street on his right side.

There is considerable improvement in his condition now (on admission), for not only has he had no convulsions of late, but the hemicrania is much less severe; the paresis of the arm and leg is less distinct, although he still occasionally strikes the floor with the sole in advancing the foot, and the dynamometer registers only 55 on the right side, as compared with 85 on the left. Indeed, the most marked feature in his case at present is hemiopia, which I now demonstrate to you. The following is Dr. Reid's report:—"With the right eye he cannot see an object which is placed the least to the outside of a line drawn directly through the middle line of the eye. With the left eye the defect is discovered on bringing an object towards the inner side, but the defect is not so great as with the right. . . . The ophthalmoscope gives negative results."

With regard to the seat of the lesion, it was evident that it was at the base of the brain on the left side, because of (1) the paresis, (2) the convulsions, and (3) the tremors of the hand, all on the right side. The hemiopia was due to implication of the left optic nerve behind the commissure. The nature of the tumour was evidently syphilitic, because of the scar of a sore on the penis, followed in some months by sore throat, and by numerous sores on the dorsum of the tongue, and because of alopecia and nocturnal pain in the hip joint.

Under treatment by the mercurous oleate of Shoemaker, all the above symptoms had almost entirely disappeared, and the hemiopia was nearly completely gone.

Dr. Thomas Reid thought that it was a clear case of affection of the optic nerve behind the chiasma. It seemed to him that the diagnosis and treatment had been much more efficacious than was usually experienced in such cases.

Dr. Tennent said that, with regard to the duration from the period of infection to the development of nervous symptoms, he had recently a case, which Dr. Thomas Reid also saw with him, in which the remarkable feature was, that a period of 20 years had elapsed since the primary infection. At the time of the infection he had been treated for two years with a good result, and had experienced no evil consequences till the onset of the nervous symptoms. In this case the result of treatment had been most successful. He had seen nervous symptoms result from syphilis after 18 months.

Dr. W. J. Fleming had seen the case, and treated him for his sore tongue with Dr. Mungall. He regarded it as clearly a specific affection, and he rapidly got well under the original treatment.

Dr. W. J. Fleming showed a case of EXTENSIVE ANGIOMA OF UPPER EXTREMITY; and gave the following clinical notes:—J. M'G., 27, signalman, formerly collier, presented himself at the Dispensary of the Royal Infirmary on 3rd April, 1885. He complained of swelling of neck, and exhibited the left arm and shoulder, which at first sight presented the appearance of extreme varicosity. The swelling was most marked in the regions of the shoulder and wrist, but the whole forearm seemed a mass of varicose veins, and a broad and tortuous very prominent band ran along the anterior surface of the lower two thirds of the arm connecting the mass about the shoulder with that on the forearm. The condition extended over the ball of the thumb but did not involve the palm. On more careful examination the great extent of the affection showed that it was more than ordinary varicosity, probably cavernous angioma—or rather two—one at and about the shoulder, the other in the forearm connected by a mass of varicose veins. At several points phleboliths could be felt, and at these places pressure caused pain.

The patient stated that the arm had been in the same condition since early childhood, but could not state whether it was normal at birth. It has never caused him any inconvenience, nor interfered with his work either as a collier or railway signalman. Indeed it was in consequence of the swelling of the neck (probably a similar condition deeper) that he applied for advice.

Billroth in his *Surgery*, Sydenham Society's translation, vol. ii, page 397, describes the condition.

Dr. H. C. Cameron said there was one point in the case which puts it out of the category of ordinary varicose veins, viz:—at the shoulder the skin is distinctly involved. When Dr. Fleming told him of the case he thought it was one of extensive cavernous angioma, and he now considered this was really the nature of the affection. He thought it was a case of multiple cavernous nævi connected by varicose veins. He had in the Western Infirmary now a case where there are multiple nævi in the upper eyelid, and interfering with vision. He remembered a case where Mr. Syme amputated a leg for venous varicosity, which was found to be a cavernous nævus. The case had been carefully reported on by Goodsir. The hard nodules in this patient's case rather bears out this view.

Dr. Middleton remembered distinctly seeing in 1879, in Dr. Morton's wards at the Royal Infirmary, a case where there was a fringe of veins all up the arm.

Dr. Finlayson said there was a paper in the *American Journal of Obstetrics* entitled "Lymphatic Obstructions" about five years ago. It might contain some information on this subject.

DR. DAVID NEWMAN showed INSTRUMENTS FOR CATHETERISATION AND COMPRESSION OF THE FEMALE URETERS; also a METHOD OF INSPECTING THE FEMALE BLADDER BY MEANS OF THE ELECTRIC LIGHT. He first showed Silbermann's instrument for compressing the ureters, and explained the method of employing it, stating at the same time that he had used it in several cases, when it was found necessary to establish beyond doubt whether or not both the kidneys were diseased. He said that he would not enter at present into a consideration of suitable cases for this procedure, as he intended shortly to publish a paper on the subject with illustrative cases, but would satisfy himself in the meantime by showing the instruments, and explaining the method by which they are used. Dr. Newman then showed his instrument for illuminating the bladder, and said that the method which he adopted was, first of all, to wash out the bladder with a warm solution of boracic acid, and after the fluid was found to come away perfectly clear, the bladder should be distended with about eight ounces of the solution. The electric lamp should then be introduced into the bladder, and a speculum inserted through the urethra. The speculum is a hollow metal tube, one end of which is closed by a small glass disc, protected by a movable cone-shaped metal cover, which acts during the introduction of the speculum as a dilator, and when the speculum has been passed about a quarter of an inch beyond the inner orifice of the urethra, the cover is rotated to one side; the electric lamp is then connected with two grove cells, and by the aid of the light the interior of the bladder may be examined without difficulty. The description of an instrument invented by Dr. Newman, of which this is a modification, was published in the *Glasgow Medical Journal* for August, 1883. Dr. Newman then showed the instrument which he had invented for catheterising the ureters. He first performed the operation on the living subject in June 1883, and since that time has repeated it on seven different occasions for the purpose of ascertaining the condition of the excretion from each kidney separately. The instrument differs from any other catheters which have been employed for this purpose, in so far that they are flexible, and not rigid tubes. The instrument may be divided into two parts—the catheter itself, and the holder. The latter consists of a hollow metal rod with an external measurement about the same as a No. 12 English catheter, and its calibre is a little greater than the external measurement of the flexible gum-elastic catheter contained within it. One end of the holder is curved at an angle, so that when it is introduced into the distended bladder its point lies over the entrance of the ureter. Two holders are required—one for the right side, the other for the left. At the handle end of the holder a small T tube is attached. At the point of the gum-elastic catheter (No. 2 English size) a small hollow metal shod is fixed, which forms a plug, and prevents the catheter from being pressed backwards out of the holder. The shod is only slightly larger in size than the catheter, and is hollow, so that urine may flow through it into the catheter, while at the same time it prevents fluid from escaping through the holder when the gum-elastic catheter is being introduced into the ureter. To the handle-end of the gum-elastic catheter a small metal plug is fixed, and is made to fit the holder, so that when the catheter has been introduced into the ureter the handle end of the holder is closed; the point of the holder is not completely filled by the gum-elastic tube, fluid is therefore permitted to flow both through the holder (in which instance it presses through the T tube), or through the catheter. The method of using this instrument is as follows:—The patient having been placed in the lithotomy position, the bladder is washed out, and afterwards distended by eight ounces of warm boracic acid solution. The middle and index fingers are oiled and introduced into the vagina, and placed one on either side of the os uteri externum, and so correspond in position to the posterior angles of the trigon of the bladder, at which point the orifice of the ureters are situated. The catheter holder with the catheter is then passed through the urethra, and the orifice of left ureter is felt for resting against the middle finger of the left hand. As soon as the point of the catheter is found to enter the ureter, the catheter is pushed through the holder as far as the plug in its handle end will permit. The bladder is then allowed to empty its contents through the T tube in the holder, while the urine in the left kidney escapes slowly through the small gum-elastic catheter, and at the same time any urine which escapes from the right kidney into the bladder may be collected from the T tube of the holder. Should it be found impossible to catheterise the left ureter, an attempt should be made to pass the catheter on the right side. The advantage of using a flexible catheter in preference to a metal instrument must be evident to all who have performed this operation. One great disadvantage of a metal instrument is that it keeps the ureter distended along the line of the catheter, so that urine may possibly pass up from the bladder, and so a fallacy may be admitted to the observation; and besides, the danger of using a rigid body is much greater than when a soft instrument is employed. When this instrument was first used by Dr. Newman, the electric light and speculum were found necessary in order to find the orifice of the ureters, but now, with the experience which he has derived from repeated operations upon the dead body and upon living subjects, he finds it quite unnecessary to use any means of illumination. By tactile sensation alone the openings of the ureters may be easily found in most cases. When the walls of the bladder, however, are diseased, it may be impossible to find the ureters, in which instance Silbermann's apparatus may be employed with advantage.

Dr. Robert S. Thomson, at the request of Dr. Finlayson, made the following remarks—The interest I have taken for some time past in catheterisation of the ureters in the female, must be my excuse for appearing before this meeting. The matter was first introduced to my notice by Dr. Pawlik of Vienna, who introduced his catheter to the notice of the profession, at the meeting of the Congress at Salzburg in April, 1881. Instruction in the use of his catheter forms part of the usual work of Dr. Pawlik's gynæcological clinique. This instrument has a double curve, with a small bulb at the point to facilitate introduction, and is of such a length that it may be passed into the pelvis of the kidney in examining cases of renal calculus. (Instrument shown.)

Dr. Pawlik's method may be best gathered from the following letter.

VIENNA, *7th Dec., 1884.*

MY DEAR DOCTOR,—I was very pleasantly surprised to find your letter, and hasten to answer your questions.

1. Simon of Heidelberg has sounded the ureters, after previous dilatation of the urethra, by introducing one finger

into the bladder, trying to feel the orifice of the ureter, and slipping the sound along his finger and into it. As far as I know, others have not had much success by his method.

I was the first one to sound the ureters without dilatation of the urethra, and without using an endoscope. I succeeded in doing so in year 1881, and sent a notice to the *Wiener Med. Wochenschrift.* I do not remember the number, but if you wish it I can find it out. If I am not mistaken, it was in April. At the "Naturforscherversammlung" in Salzburg, I made a communication to the Congress, and demonstrated the proceeding on two women. The communication is published in the *Archiv für Gynækologie*, 1881, xviii Band, 3. Heft; in the *Centralblatt fur Gynækologie*, 1881. v Jahrgang, Beilage zu Nro. 21, and in other German papers.

2. I have now sounded more than 150 bodies, and about 50 living women. In the dead body it happens frequently that favourable conditions are not present, and it is impossible to sound the ureter. In the living the conditions are more favourable, or when unfavourable, these conditions can be easily produced artificially, and I rarely have an insuccess.

3. As a guiding point I used formerly certain folds in the vaginal wall, that correspond under certain circumstances to the trigonum Lieutandii. After having practised so much, I find the uretral openings even when these folds are not visible, as in a much dilated vagina, where they disappear.

4. In the two papers mentioned above, you will find a short description of my method. Now I am going to publish a more extended paper upon this subject, and shall send you a copy as soon as it appears.

I hope that this will be sufficient for you in the meantime; you saw me do it, and so far as I remember, you introduced the sound yourself. I add a drawing of the folds of the vagina, which are readily seen in a woman who has never had children. When the bladder is not too much dilated, the openings of the ureters are to be found at the spots indicated. In a contracted bladder, it is not possible to find them. The most favourable is a bladder of about the size of an apple, when the folds correspond to the trigonum,—Yours truly,

D. PAWLIK.

Dr. Thomson, Glasgow.

In conclusion, I have been asked by Dr. Macewen to correct a statement made by him at a former meeting of this Society, which was to the effect that Dr. Pawlik frequently failed to introduce his instrument. This statement was made on the authority of one of Professor Albert's assistants, between whom and Pawlik there was not a little jealousy.

Professor M'Call Anderson referred to a case of Pyonephrosis in which he availed himself of the services of Dr. Newman, who made use of Silbermann's instrument.

DRS. FINLAYSON, ROBERTSON, and NEWMAN showed specimens from cases of CEREBRO-SPINAL MENINGITIS.

Dr. Robertson's case has already been reported in the January, number of the *Journal*, 1885, vol. xxiii, page 63.

DR. FINLAYSON showed specimens from a case of CEREBRO-SPINAL MENINGITIS.

The patient was a young man, 19 years of age, who was admitted to the Glasgow Western Infirmary, on Thursday, 19th March, late at night. He died about 1 A.M. on the 22nd. Dr. Finlayson saw him within an hour after admission, when he found him placed in a side room on two mattresses on the floor in a corner. On these he rolled round from the edge of the one to the edge of the other, from side to side, and right round over his face. He rolled thus many times in succession and then seemed to rest, sometimes as long as 10 or 15 minutes, as if exhausted, and began again after that time, or sooner if he were touched or disturbed in any way. He kept pretty much in the upper part of the beds, that is, he did not tend to come down to the part where his feet were; he tended to land in a corner and to bury his head in the pillows. Occasionally he sat up on his buttocks for a moment, but fell down almost immediately. He frequently threw his arms upwards and struggled if interfered with. He never spoke a word, but occasionally gave an inarticulate groan or shout. Evidently he was really unconscious, and yet he winced if the eyelids were opened, and if a part were pricked he withdrew it. No part seemed destitute of movements. He could not be got to swallow anything, as he resented and resisted by movements any attempt to introduce a spoon into his mouth. The pupils were equal, of moderate size, and contracted on exposure to light: at times, however, they varied in size while still exposed to light. The face was flushed and became more red the day after admission, but this was no doubt due in large part to the rolling movements. No rash was present on the skin, but it became very red after admission, evidently from the friction. The skin did not feel hot, and the thermometer, applied as well as possible during a lull, showed about a normal figure. Next day, while under chloroform, the temperature in the rectum was only 101° F. and this was nearly the highest figure observed all through. The pulse varied much: on admission it was only 50 or 56; very feeble and irregular periods occurred with 3 or 4 rapid beats; sometimes intermissions occurred. Next day it was 64 and of fair strength; it got up on the following day to 76, and before death reached 120 or 130—the last temperature taken being only 101°. The breathing at first was not implicated, being neither rapid nor laborious, but for some hours before death it became both. The skin, although not hot, gave the "tache cérébrale" described by Trousseau. An alternate internal squint seemed to be present, but as his vision could not be fixed, this could not be depended on in any way, and moreover some story was told of his having had a slight squint before taking ill. The nape of the neck was not rigid in the sense of the muscles being tense, but from the first he was inclined to hold his head back a little, and this became very marked before death. Even at the worst, however, there was no tenseness of the muscles, but even at the slightest degree of it he was noticed to resent having his head laid back on the pillow. Some flattening of the belly was noted. No tenderness was detected by his wincing on percussing the vertebræ pretty strongly. An examination of the heart, so far as it could be practised under difficulties, revealed nothing; on the following day, while under chloroform, neither heart nor lungs afforded signs of disease.

As the bladder did not seem full, and as the state of the pulse did not seem to warrant the administration of chloroform or chloral, and as the diagnosis was so obscure, and as, moreover, he could not be got to swallow, it was deemed best to leave him as quiet as possible, to do nothing till the morning unless to administer a few spoonfuls of fluid and small quantities of brandy if he could be got to swallow them.

The morning after admission a consultation was called. The pulse being better, it was decided to give chloroform, to empty the bladder, and to administer purgatives or enemata; to keep him under the influence of chloroform for some time so as to subdue if possible the incessant restless movements. The urine removed measured 34 oz., was high coloured, acid in reaction, and contained a very small amount of albumen, but no sugar. An enema was given while under the chloroform, and in the afternoon, as it had not come away, a successful attempt was made to give him two drops of croton oil by the mouth, which by and bye acted freely. The influence of the chloroform was kept up for an hour and a quarter, and after it was removed he lay quiet for another hour, and from that time his movements were somewhat less violent and incessant. The chloroform was again administered for an hour at night, and 10 oz. of urine again drawn off; subsequently he passed urine under him in bed. Next day (21st) he seemed much quieter, and even looked up with the appearance of some intelligence, and he was reported to have taken some milk from a spoon. The eyes, not notably congested at first, were now markedly so: the head was even more retracted; and the tongue and lips, dry all along, were now more covered with brown crusts: the tongue, moreover, the day after admission had shown a tendency to loll out of the mouth a little, as if swollen. The worst new feature on the 21st, however, was a coldness of the surface of the arms coupled with a greater redness from the friction of skin. In the afternoon of this day (21st) the face became pale, the pulse grew rapid and the breathing laboured and noisy, mounting up to 40 or 60 per minute; and some paralysis of right side of the face, and of the right arm seemed to exist just before death.

The young man was in Glasgow only about a fortnight altogether. He had come from a farm near Dunfermline, and had been in lodgings of a good character in Glasgow. He had always been healthy, and his family history was good. He had had no ear discharges at any time. On Wednesday, the day before admission, he came home a little earlier than usual from his work, in a drapery warehouse, complaining of being sickly, but he had no vomiting. He had taken a "sweating powder," and slept moderately well, but did not rise on Thursday morning, still feeling ill. He had made no complaint of any severe headache, but he seemed a little feverish, and had applied cold cloths to his head, and he appeared to be thirsty. At mid-day his landlady heard a noise in his room, and found him lying on the floor, as if he had fallen out of bed; and the lateral rolling movements seem to have begun then, and to have continued. He was with some difficulty removed to the Hospital late at night.

The *post-mortem* examination showed pretty abundant gelatino-purulent exudation, chiefly in the sulci of the convexity of the brain, and a small but distinct amount of exudation was found following chiefly the course of the veins down the posterior aspect of the spinal cord as far as the dorsal region. There were no lesions of importance elsewhere.

Mr. Nigel Stark, M.B., read the following notes of two cases, the specimens from which were shown at the meeting, and presented the usual characters of CEREBRO-SPINAL MENINGITIS.

E. A., æt. 21, ballet girl, residing at 14 Roslyn Place, was admitted 11th December, 1884, into Ward II, Royal Infirmary, at 9·45 P.M.

The following history was obtained, partly from Dr. Ritchie, who had attended her, and partly from the people in the house where she had been living:—

She had been rehearsing for the pantomime in the Grand Theatre, and had had a great deal of fatigue, and her hours of work had been very late. She, however, distinctly stated that she was perfectly well until the 6th inst., when she was suddenly seized with a rigor of a very severe character, which, however, subsided after a short time. From that date until the 10th she complained of headache, and vomited all food that she attempted to take. Upon the 10th she sent for Dr. Ritchie, who then learned that she suffered from severe pain in the back, which was increased by pressure, and also from frontal headache. She spoke in a low tone of voice, as she said that talking hurt her head. The bowels were constipated; her tongue covered with a soft white fur. There was no increase of temperature, as far as could be judged with the hand, and no thirst. She had been vomiting all her food. Calomel was prescribed, with mustard to the pit of the stomach and nape of the neck. Next day (11th) her bowels had not acted, so pulv. scammon. (gr. x) was given. She, however, became gradually unconscious, and her removal was ordered to the Infirmary.

Upon examination after admission, patient was found in the following condition:—She was in a state of most profound coma, the most violent stimulus failing to elicit the slightest signs of consciousness. The breathing was loud and stertorous. The left pupil was widely dilated, the right much contracted, and both insensible to light. The tache cérébrale could be easily developed all over the body. The muscles of the legs and arms were not rigid, but quite limp and flaccid. The head was slightly drawn backwards, but the muscles of the neck were not rigid. There was no eruption on the body. The temperature was 103·4° F. in the right axilla, and 103·8° F. in the left. The pulse was 140 per minute, soft and compressible. Moist râles could be heard all over the lungs. The cardiac sounds were normal.

Castor oil (℥ij) was given, and mustard applied to the nape of neck and chest, but the coma continued, and she died at 5·30 A.M., 12th December, eight hours after admission. At

4 A.M. her temperature was 106·6° F. in the right axilla, and 106·8° F. in the left. No further symptoms developed during the night, and those above noted continued until her death. Immediately after death large purple patches appeared on her legs, arms, and body, immediately under the skin, and they gradually deepened in colour.

M. D., ætat. 14, domestic servant, was admitted in Ward II, Royal Infirmary, on 10th April, 1885.

History.—Until the 5th April she had been in good health, but on that date she received a severe wetting from rain. She did not feel any immediate effects, but next day, while out in the afternoon, she began to feel very sick and vomited a great deal in the street. She managed to get home with difficulty and was put to bed. From that time until her admission into the Infirmary, four days later (10th April) she suffered from severe headache and pains throughout her body, and she vomited everything which she swallowed.

Her appearance and condition on admission were as follows:—

Her face was drawn and pinched as if she were suffering greatly; she moaned incessantly, and complained of pain throughout her body. This pain was markedly evident in all the muscles of her body, and was scarcely felt upon pressing the joints, and had not been in them at any time. The pain was continually present, but was much more severe at some times than at others. There was also severe pain in the head, at no localised spot, but diffused all over the head. It was of a heavy, aching character, and caused the girl to feel stupid and dull. The head was slightly inclined to be drawn back, but this was a very variable symptom during her illness. A great deal of pain was complained of in the back of the neck. The muscles were not rigid there, but were sore when pressed. The tache cérébrale was readily developed. Throughout the whole body the muscles were hyperæsthetic, the patient screaming upon even slight pressure of them. This was not confined to any set of muscles, but was general. The skin was not affected. Patient could distinguish degrees of heat and cold, and could localise points of pain as from the prick of a needle. Owing to the pain she experienced upon moving, no attempt was made to discover if the deep reflexes were normal, but those of the skin were all right.

The girl could readily answer questions, and gave a distinct account of her illness, symptoms, &c. She had complete control over her bladder and rectum. The pupils were equal in size, and reacted both to light and accommodation. The temperature was 103° F. Pulse 120.

Next day (11th) she was put upon iodide of potassium (15 grs. every four hours, and afterwards every two hours) and her symptoms became much improved. She ate well and slept soundly; the pain in her head and throughout the body became much less severe, but upon the morning she saw some friends. The visit excited her, as her visitors seemed to have frightened her, and she had two or three very severe rigors, and all her symptoms became much aggravated. She became noisy and delirious; her head was often firmly drawn back; she continually complained of pain in her head, neck, back, body; her arms became rigid; she lost control over her bladder and rectum. Light and noise seemed to irritate her. A glimpse was obtained of the fundus of her eyes, and as far as could be ascertained they were normal. There was never any vomiting, and her legs were never rigid. The pain upon pressure of the muscles always continued. During the last four days of her life coma gradually supervened, and she died profoundly comatose on the 20th April.

Comparison of the two cases:—

1. Both patients were young women—one fourteen, the other twenty-one years of age.
2. In both there was a previous history of fatigue and hard work. The first was, however, intemperate in her habits, and in the case of the second there had been a severe wetting.
3. They both were attacked suddenly while in apparently vigorous health, and there were many points of similarity in the symptoms: rigors, vomiting, pain in head and neck, retraction of head, stupor, leading to coma and death.

Dr. Joseph Coats, and Dr. G. P. Tennent, showed specimens from a case of MULTIPLE MELANOTIC SARCOMATA, which will be published in next issue.

Professor Gairdner inquired whether Dr. Coats had had his attention called to the melanotic tumours occurring in the fetlocks of white and grey horses of all ages. A good many years ago he was in contact with many veterinary surgeons; and being pathologist at the Infirmary, he put the question to them, how did they regard those tumours in the lower animals? They did not regard them as malignant, and they had no hesitation in removing them. They do not tend to ulcerate, and they heal well.

Dr. Johnstone Macfie referred to a specially interesting case of melanotic tumour of the conjunctiva, which had been excised three times within the last two years; and previously to this it was excised eighteen or nineteen years ago by the late Dr. Mackenzie.

Dr. David Newman had had several specimens of melanotic sarcoma to examine; and within the last three months had three cases. He did not understand why a melanotic sarcoma should be regarded as more malignant than others. He would rather say that they were less so. He thought that they must look upon the case pretty much with regard to the locality. He thought the pigment might be regarded often as an accident.

Dr. J. Lindsay Steven could not agree with the remarks made by Dr Newman, which were contrary to the teaching of most authorities, and to the facts of the case brought before the society by Dr. Coats. Sarcomata spread by means of the blood-vessels; and he thought that the fact of pigmentation in such a tumour indicated a closer relationship than usual between the tumour cells and the vessels.

Dr. Joseph Coats also stated that he could not agree with the remarks of Dr. Newman.

GLASGOW SOUTHERN MEDICAL SOCIETY.

14th May, 1885.

Dr. W. Carr, *Vice-President, in the Chair.*

DISCUSSION ON HYSTERIA.

Introductory Paper by ROBERT POLLOK, M.D.

Mr. President and Gentlemen,—The introduction of a discussion on the Differential Diagnosis of Hysteria and Disease of the Brain, necessitates the accurate definition of the wide, varied, and compound term hysteria itself; and I purpose to limit the interpretation of the term to-night to those cases which simulate organic lesion of the cerebral substance. By hysteria I mean a nervous derangement or disturbance of the constitution, by which the whole mental and moral nature of the patient are changed or perverted for the time being. The ordinary well behaved regulators of the different functions and mental conditions are wholly or partly in abeyance, and the individual is spell-bound or under the influence of a factor which, to fall back upon Scriptural language, may be called a "devil;" and if we limit hysteria to these cases then indeed we will meet with very few, for, I believe, that as pathological and clinical research progress, in the same proportion will so-called hysteria be eliminated from medical nomenclature. The mental or moral obliquity is in many cases of hysteria as actual and beyond the control of the patient as is the deformity of a talipes or strabismus. The whole history of the affection shows that it has undergone a narrowing signification; originally believed to be due to the bad behaviour and whims of the uterus, it had to undergo limitation when it was found to exist in the sex that could not boast the possession of such an organ; the same objection holds good to those who assign the Protean forms of hysteria to the yearnings of a dissatisfied ovary. Further, many cases that we now know to be due to organic lesion of or pressure on the higher centres of the brain were formerly all labelled hysteria. Even at the present date it is much to be feared that when we meet with a case that baffles our diagnostic faculties we are prone to forget our fallibility, and relieve ourselves from further trouble by crediting the imagination with being the sole factor in the production of the symptoms, as the following case illustrates. A woman of a typical nervous temperament, about the climacteric period, consulted me and detailed a very highly painted condition of matters, such as creeping, shooting pains in the head, &c., believing that her brain had been diseased, or partly destroyed, through exposure one day to the steam of the washing tub. There was constriction at the throat, and a feeling of distension in the abdominal region. The whole demeanour of the woman pointed to a hysterical condition. The throat, on examination, was hyperæmic, but I detected as well a most abominable odour, which I believed to be ozœna. I insufflated iodoform and instructed this to be continued. In about a week she returned, bringing a piece of necrosed bone, which she said had passed with a quantity of pus from her throat and nose. From that moment all her symptoms disappeared. Here, superadded to the hysterical condition, and, indeed, the cause of the exhibition, there was actual necrosis of bone going on, but so clouded by exaggerated indications as to be overlooked by several medical men, who had laughingly bowed her out of their consulting rooms—one of them having been her trusted medical adviser for years, and very worthily so too. Please do not infer from this that I do not believe there may be a remnant of cases in which all the sufferings so graphically described may be due to a species of insanity, or a thoroughly bad or vitiated nature, in which, possibly, the best treatment would be the application of digitated leather to a nude gluteal region. Take for example a spoiled bad boy whose younger brother had died shortly before of tubercular meningitis. The mother was a most anxious sympathetic woman, and very delicate. This boy was more petted than ever after the death of his brother. One day he took a severe headache and was sent to bed. I was sent for and found him with iced cloths on his head, and the whole household in a most excited condition. He would not speak, but lay in a comatose condition, refusing everything. There were none of the symptoms of meningitis present, nor evidence of any other disease, and I had my suspicions. For three days this boy lay in a similar condition. As still no signs evolved, which increased my suspicions, taking advantage of the parent's temporary absence from the bedside, I gave him a sound verbal rating, about doing the whole acting in a very awkward manner, and drew a pretty lively picture of what would require to be done if there was no improvement by the morrow. Improvement rapidly set in.

We have also examples of young ladies budding into womanhood where life has rolled on too easily; or, on the other hand, where blasted hopes and bitter disappointments have told too heavily on a highly strung nervous organisation. The yearning for sympathy, the desire to be the interesting invalid, will stimulate many a woman to pretend an illness; and if she can only wheedle a needy or a simple practitioner, there will be no end to the different phases assumed. You find the patient surrounded by kind, enquiring, and sympathetic friends; and the bed-room loaded with all the paraphernalia of the sick-room. The patient is wasting a useful life, and an energy which might find many channels for healthy occupation, is being allowed slowly to petrify all the nobler feelings and aspirations which ought to characterise the opposite sex. What is needed here is pretty plain speaking, a firm, but polite attitude. You may even be dismissed from the case; and the patient, to spite you, may rapidly recover under the phylacteries of a professional brother; but you have the feeling of satisfaction, which comes from the fulfilment of a duty, and no one is more conscious of it than the patient herself, who, in a dangerous and real illness, will be the first to repose her confidence in your ability and treatment. I do not believe in treating such cases by outwitting them, like the young French practitioner who was called to see a lady who was convinced she had swallowed a live frog, and there it was holding high carnival. The most eminent men had been consulted with no avail, the frog would not budge. A happy idea struck the doctor, and he declared that he would depose the offending animal from his dais, and concealing a frog, he administered an emetic; during the throes of the emesis he dropped it into the utensil, and the astonished old lady was thunderstruck. She at once fell back upon diplomacy, by declaring that, as the symptoms were not improved, the animal must have taken the liberty of converting its comfortable abode into a lying-in-hospital, or shortly had undergone parturition. Esculapius was not to be done, lifting the frog, and scanning it all over with his pocket lens, he solemnly declared, "Ah, madam, that cannot be, for I do assure you it is a *male*." I should like to have heard the private opinion of that lady regarding the smart official. This, of course, is legerdemain, mere chicane, and not treatment, corresponding to the *placebos* administered by some. Such flimsy artifices of disease are easily detected, and the proper treatment of them is total separation from all friends, and absolute control over the patient's whole surroundings, which, in private practice, we may have great difficulty in obtaining. But, if we are firm, and careful to point out the mental weakness which may develop, in the majority of cases we will carry our point.

In the two cases which I will, with your permission, relate, there are, however, great, and it may be insurmountable, difficulties in correctly differentiating hysteria from grave cerebral mischief.

A young lady, ætat. 19 years, had come from Ireland three days previous to her illness, to spend her Christmas holidays, accompanied by her sister. The passage was rough, and she was sickish, but this soon cleared away, and in the friend's house to which she had come she was cheerful, and had been out shopping in perfect health. On the third day from her arrival, which was Sunday, she suddenly rose from the dinner table, and taking a chair at a distance, refused to speak. Her sister and friends naturally concluded that she had taken offence, but as the condition was continuing, I was sent for about 10 P.M., and found a beautiful young lady reclining comfortably in an easy chair. Pulse was normal, and not one single symptom of disease present, except a pallor suggestive of anæmia, and aphonia. The history of the family was good, and the personal history was a healthy one. Interrogations produced no reply, but on asking her name in a sudden and sharp tone of voice, she correctly whispered her Christian one. On ordering her to bed, she at once rose and, with little assistance, walked upstairs. No visible manifestations of cerebral disease were present. Pulse and temperature normal, and pupils sensitive to light. There was a constant swallowing movement, as if a constriction of the throat existed, which is often observed in hysterical cases. On making some jocular remark, she faintly smiled. On the following day there was no improvement; patient had passed a restless night, and there was retention of urine. I had, from the resistance offered, considerable difficulty in passing the catheter; the urine was abundant and clear. I discovered that she was menstruating, but still no evidence of disease. I applied strong ammonia to her nostrils, which I have found useful in simulated unconsciousness. She winced, and withdrew her face. The bowels had not acted, and as there was difficulty in swallowing, I applied half a drop of croton oil to the tongue. As matters remained *in statu quo*, and there being no response to the usual treatment, I gave a gloomy prognosis, and took Dr. Finlayson to see her. He concluded, after a most careful examination, that the symptoms were, in his opinion, hysterical, basing his diagnosis on the typical nervous temperament, the retention of urine, the presence of the catamenia, and the absence of positive symptoms; and, much to the relief of the friends, reported accordingly. During the night, however, about four hours after we had seen her, a convulsion occurred, and on my arrival I found her in an apoplectic condition—with facial paralysis, insensibility of the pupils, and stertorous breathing—in which state she gradually sank from, no doubt, hæmorrhage into the pons Varolii.

In this case it was impossible to diagnose cerebral disease where even so astute an observer as Dr. Finlayson failed, and yet I have no doubt it was going on from the first, but only touched centres whose signification we can decipher a few hours before death.

Case 2.—A girl, ætat. 19 years, whose personal and family history I was perfectly well acquainted with. She had been under my care at intervals from uterine irregularities and chlorosis, accompanied with the usual symptoms, for upwards of a year. Nine months previous to present illness, she suffered from a febricula for about fourteen days. There were no pronounced symptoms present. Debility and a temperature ranging from 100° F. to 101° F. characterised the illness. A change and a ferruginous tonic braced her up considerably. She now became much interested in missionary and religious work, and was an energetic and eloquent advocate of Blue Ribbonism. From this busy sphere she gradually lapsed into inactivity, household duties ceased to interest her. She sat brooding over the fire; and, when reproached by her senior sister with laziness, replied that "she was Mary, that had chosen the better part," whilst her sister was the Martha. To break up this monotonous drama a change was recommended; but sickness set in and she took to bed. Her conversation degenerated into replies, and from that into aphonia. The sickness or vomiting continued only the first day. For ten days she lay in a simply passive condition, taking her food when offered, but no signs of disease exhibited themselves; pulse and temperature normal. Her mother and sister were convinced that she was malingering, and declared positively that she watched; and when we stood aside, she at all events had the appearance of listening. I changed her to another room to prevent this. Food now was refused, and for two days nothing was taken. I passed a feeding tube through which I gave milk and beef-tea. She did not seem to relish this, for after the second dose she took her food greedily enough. Having gained this point, I was sanguine in expecting a gradual improvement, but disappointment was the result.

I then applied the galvanic brush lightly over the limbs; but, on increasing the current, she bolted right up and shouted loudly, "Stop, Pollok, stop!" the first words uttered for nigh a fortnight. This was most gratifying both to myself and friends, who had all along declared that they were certain she could have spoken. The next morning she was in the same condition. The galvanism annoyed her much, and she rolled herself in the blankets to escape it; but she did not speak. Her friends, however, said she had talked incessantly during the night and was much more pliable, assisting in her ablutions and dressing. The pupils were quite sensitive to light, and on applying the taper very closely she blew it out.

I had watched this case for now a fortnight, and with my previous experience was chary in naming it hysteria, and explained this to the relations, adding, however, it was my belief that it was so. I talked very earnestly to the patient, and told her I had exhausted my armoury, and that she would require to be removed if improvement did not occur. All treatment was now set aside, and the case left to expectancy. The temperature began to rise, and in two days Dr. Finlayson saw her with me. He acknowledged the difficulty in accurately diagnosing, but considered the case a grave one, and agreed with me in removing her to his wards. In a note accompanying, he stated that the diagnosis was doubtful, but the case was to be treated as a cerebral one. She died in two days from her removal.

There can be no doubt that at the onset of the disease this case was one of hysteria. The hyperæmic condition of the brain which is present in hysteria may have led to an inflammatory process which marked the close of her case, and set up secondary changes in the nerve roots; but although I pleaded for a *post-mortem* examination, it was sternly refused.

Are there any pathognomonic signs which characterise hysteria? Limiting the term to the definition with which I started, I believe that in the majority of cases there is not much difficulty in the diagnosis, especially in the weak individuals who are prone to such affections. All the symptoms and artifices are too transparent to elude the observation of medical research. Therefore, when we meet with cases of cerebral disorder, although there may be present all the factors which in the aggregate constitute hysteria—viz., the increased impressibility, the menstrual derangements, the choking sensation of the throat or the globus hystericus, the conducive surroundings of the patient, the spoiled darling, or the broken down, wearied, and disappointed life, and not one symptom of organic lesion. Even although the ophthalmoscope give negative results, we are bound to give the patients the benefit of the doubt, and treat them as real. I say this in full consciousness of the evil of supplying the morbidly mental conditions of the actor with the very fuel on which they live—*i. e.*, the increased attention and sympathy of all around. It is much better to allow the drama to proceed than to hear or bear the fearful retributions which follow in the wake, if such cases wind up in a tragedy. And there are none so bitter in their recriminations as those who all along suspected the imaginary nature of the affection.

Dr. Jas. Finlayson stated that he only once saw the second case Dr. Pollok referred to. He believed, however, that in the course of her stay in the Infirmary pronounced symptoms of brain disease developed. No *post-mortem* was permitted. However, with regard to the first case (that of the young lady who was on a visit here), he confessed he was grossly wrong in his diagnosis. He knew, of course, at the time that it was possible he might be wrong, as he had seen cases before in which serious disease started with somewhat similar symptoms; but with the best judgment he had at the time it seemed to him a case of hysteria. It developed without any headache, and the peculiar condition of the patient previous to and up to the time he saw her was certainly what he would expect in hysteria. But although Dr. Pollok and he thought the girl was the subject of hysteria, and acted accordingly, they took care, in giving directions, to order nothing that could by any possibility do harm. In the course of his (Dr. Finlayson's) experience he had frequently been brought face to face with this difficulty—viz., the diagnosis of grave organic disease and hysteria, and it was by no means easy in many cases, especially in their earlier stages, to give a decided opinion. He would briefly relate cases that came under his notice. He was asked by Dr. Fenwick, some years ago, to see a very remarkable case. It was that of a girl who had frequent attacks of illness of a hysterical nature, but this time the symptoms were rather unusual. When he saw her her appearance was almost beyond description. The face was greatly discoloured—something akin to the aspect of a dissecting room subject 7 or 8 weeks old. Twitching movements of the face of a convulsive type occurred almost incessantly. The discolouration of the face was said to vary from time to time; when Dr. Finlayson saw it he thought at once it was humbug, so after some considerable manœuvring he got the face thoroughly washed, and to the dismay of all around, the discolouration disappeared and never returned. Soon after the twitchings ceased also. This was the end of her illness at that time; but he was informed that her conduct was so strange some time after that she was placed under the care of Dr. Yellowlees, but from this also she recovered.

Another case occurred at the time of the opening of the Western Infirmary. A young girl was seized somewhat suddenly with symptoms regarded by the doctor who saw her outside as hysterical; but when Dr. Finlayson saw it he had considerable misgivings as to what to diagnose it. There was present that peculiar wincing of the eyes when forcibly opened, usually considered a symptom of hysteria. He thought, as there was doubt in the matter, the safer course would be to treat it as cerebral disease. By the next morning the temperature was up to 106° or 107° Fah., and death ensued. There was no *post-mortem*, but it was probably a case of hæmorrhage from a small aneurism. Shortly after this he saw another case with Dr. Finlay which presented nearly all the symptoms of typical hysteria when he saw her, and he diagnosed accordingly. However, in the course of three days the girl died from pronounced symptoms of meningitis.

The next case he would refer to was that of a young man whom he was asked to see in consultation late at night. He lay in his bed with his legs incessantly flopping up and down, and altogether the symptoms were such that had the patient been a woman instead of a man he would have had little hesitation in pronouncing it hysteria; but as it was he gave a gloomy prognosis, which turned out to be only too true, as the young man shortly afterwards died. In contrast to this case he had another young man under his care in the Western Infirmary. He was sent in at night and his condition was so peculiar that the house assistant sent for Dr. Finlayson. On arriving he was puzzled to know what was wrong. The story was that the young man had been complaining for ten days of pain in his head, and three days before admission became speechless, but regained it in the course of a few hours. The day after that he was much worse, and when admitted he was quite unable to speak and had lost a certain amount of power in one of his arms, but there was no evidence of gross paralysis. He had the appearance of a person deeply under chloroform, with impending suffocation, and when his jaw was pulled forward he would get better for a time; but he could not be induced to swallow anything. Acting on the principle of it being a cerebral case he (Dr. Finlayson) ordered the head to be shaved and cold to be applied, and the administration of ʒi of bromide of potassium by the bowel. There was a marked improvement in the morning, and shortly afterwards a perfect recovery. Dr. Finlayson had no doubt now that this case was essentially hysterical. Passing from the subject of grave brain lesions to that of epileptic attacks simulating hysteria and *vice versa*, of which he had seen a fabulous number of cases of late years, he would mention one case which appeared to him interesting. He got a hurried summons one night after ten o'clock to see a lady whose husband thought she was going to take an epiletic fit. He (Dr. Finlayson) had seen her in fits before, but her husband thought it might be important that he should see one "brewing." He went and waited a complete hour watching the approach of a true epileptic fit. The patient was a lady of great vivacity, and took a keen interest in everything that went on. The change noticed in her demeanour before a fit was therefore very marked. She seemed to get into a dreamy condition, and became apathetic and dull. Most people would say, Dr. Finlayson remarked, that an epileptic fit that predicted itself an hour before its occurrence was hysterical, but he considered it was not so. He happened to have occasion to write Dr. Hughlings Jackson, and he mentioned this case to him. In reply, Dr. Jackson said—"I quite agree with you that the fact of a fit being pronounced beforehand is no evidence of hysteria."

Mr. James Johnston related a case of cerebral hæmorrhage, with premonitory hysterical symptoms, which came under his notice.

Dr. Park considered the Society was highly indebted to Dr. Pollok for introducing a subject of such wide interest to general practitioners. Cases of brain disease on the one hand, indicating symptoms of hysteria, and hysteria with brain symptoms were met with frequently, and there was no class of cases where practitioners were more apt to get into disrepute. With reference to the broad question of the general line of treatment to be adopted in dealing with hysterical patients proper, he agreed with Dr. Pollok, that we ought rather to err on the side of leniency, and treat them as suffering from a serious affliction, if there is the slightest doubt. He happened to know the patient in the first case mentioned by Dr. Finlayson. She was originally a patient of Dr. Wilson's (Coatbridge.) She illustrated not only pure hysteria, but hysteria complicated with uterine and brain disease. She had also her sensory functions excited to a most extraordinary extent; and when the higher centres of the brain became excited, she would write off long poems of a high class. At the time of the consultation with Dr. Finlayson, the centres of self-consciousness appeared to have become exalted, and hence the desire to do something to attract more attention. The sequel of the case is that she went to Brompton Hospital and studied there as a nurse; and has now become a most efficient nurse, liked both by patients and medical men.

Dr. Carr thought it unfortunate there was such a word as hysteria, because, as Dr. Pollok had remarked, there was usually some true affliction behind the so-called hysterical symptoms.

Dr. Pollok briefly replied, thanking the members for the interest taken in the discussion.

MEDICAL ITEMS.

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

The Pathology of Herpes Zoster.—Dubler, in *Virchow's Archiv* (vol. xcvi, p. 177), gives an account of two cases of herpes zoster in which he made a thorough anatomical and histological investigation. In both he found distinct evidence of neuritis which extended to the cutaneous twigs of the nerves, and he believes that the eruption is a true inflammatory one due to the extension of the inflammation from the nerve twigs to the tissue of the skin. He combats the view that the disease is a tropho-neurosis depending on lesions in the ganglion of the posterior root, as he found these ganglia healthy in his cases. In one of his cases the inflammation of the nerves had origin in a periostitis of three ribs, the corresponding intercostal series being affected. Another interesting point is that the neuritis extended somewhat into the muscular twigs, just as other inflammations of nerves do, and in this connection it is very interesting that in several cases muscular paralysis has been associated with herpes, as in a case by Broadbent, where a herpes in the course of certain branches of the brachial plexus was associated with partial paralysis in the corresponding motor nerves, and one by Vernon in which, with herpes zoster ophthalmicus, there was paralysis of the oculomotor nerve.

The Treatment of Abortion.—Schwarz, of Halle, has written a very comprehensive treatise (*Volkmann's Sammlung klinischer Vorträge*, No. 241) on this subject, in which he first speaks briefly of the prophylaxis, and then considers in detail the treatment of abortion already in progress. When there is a pre-existing tendency to abortion, Schwarz believes that only in the rarest instances can premature expulsion of the ovum be averted by continuous lying in bed, by giving up the usual occupation, and by the careful avoidance of all external circumstances and conditions usually considered prejudicial to the pregnant state; the reason being that only exceptionally are the effective causes of abortion external, but in the great majority of cases are to be found in abnormalities of the internal reproductive organs, or in general affections, especially syphilis. The most favourable time, therefore, for the successful exhibition of prophylactic treatment is before impregnation has taken place, attention being directed to the correction of structural anomalies, malpositions of the uterus, especially backward displacements, and inflammation of the endo- and peri-metrium. Schwarz calls especial attention to another factor which he has found to be a frequent cause of abortion—namely, deep lacerations of the cervix, and he points out the importance of repairing such lacerations as a prophylactic measure. After conception has taken place Schwarz believes there is but little opportunity for active prophylaxis, except in correcting uterine displacements and in the treatment of syphilis. Coming then to the treatment of already impending abortion, Schwarz endeavours to lay down certain rules by which it may be determined whether or not the abortion can probably be prevented. He thinks the condition of the cervix affords one of the surest signs: if the cervix permits the passage of the finger through the internal os, if, also, the lower pole of the ovisac is within reach and is forced down into the upper part of the cervical canal, or if, in the case of primiparæ, although the external os is still impassable, the cervix is already taken up and forms with the uterine body a common cavity, then the expulsion of the ovum is beyond question. A foul vaginal discharge, indicating the probable death of the ovum, or a considerable hæmorrhage lasting several days, especially if accompanied by dull or cutting pains in the sacral region, are almost infallible signs. If a reasonable hope of preventing the expulsion of the ovum exists, the end is to be sought by enforcing the greatest possible bodily and mental rest, and by the free use of opium. If, however, abortion is inevitable, expulsion of the ovum should be hastened as much as possible, with the view of keeping the attendant dangers within bounds. The dangers against which in abortions one has to contend are hæmorrhage and septic degeneration of the ovum. If the ovisac has not ruptured, Schwarz recommends the cervico-vaginal tampon as an absolutely sure means of arresting the severe hæmorrhage which almost without exception accompanies the expulsion of the ovum in the first half of pregnancy. As soon as the hæmorrhage shall have been controlled, the tampon should be removed, and the vagina cleansed and disinfected. A cotton wad sprinkled with iodoform should then be placed against the cervix and held in position with a vaginal tampon. Thus protected against hæmorrhage and septic infection, the patient can be left for from eighteen to twenty-four hours; the tampon usually increases the pains, and thus promotes the dilatation of the cervix and the expulsion of the ovum. If, however, by this treatment inconsiderable progress is made, Schwarz is accustomed to administer an intra-cervical douche, to the amount of two or three litres, of a cold antiseptic fluid, using for the purpose a catheter suitably bent and provided with lateral openings. The object of the douche is not so much to dislodge the ovum as to awaken uterine contractions, and the author has found cold irrigations more effective than hot, which latter have sometimes apparently produced paralysis of the uterine muscle. If alternate use of the tampon and the cold irrigation does not effect the desired result, Schwarz then resorts to laminaria tents carefully disinfected and sprinkled with iodoform. Should, however, this method appear too tedious, on account of the invasion of fever or beginning degeneration of the ovum; or if for any reason the uterine contractions are not sufficiently powerful to expel the ovum, Schwarz recommends the dilatation of the cervix with Fritsch's dilators, the separation of the ovum with the finger, and removal with finger or forceps, as appears most convenient. If at the time that treatment is to be instituted the ovisac has ruptured, an entirely different method is to be pursued. Rupture of the sac, if not positively recognised by escape of the liquor amnii and expulsion of the fœtus, can be diagnosticated with great probability from the diminished size and elasticity of the uterus. In cases of ruptured ovisac, then, the tampon is not to be used, unless provisionally, on account of the danger of concealed hæmorrhage, especially in abortions after the fourth month, and of septic infection from degeneration of retained blood clot or decidua; but if the cervix is not already passable for the finger, it should be immediately dilated manually or instrumentally, and the uterus speedily emptied of its contents. When there exists pelvic effusion or recent inflammatory action, this should be done with the greatest gentleness, and all instrumental interference avoided if possible. The curette is often of the greatest service, especially in cases in which persistent hæmorrhage points to the probable retention of a bit of decidual or placental tissue; the value of subsequent styptic injections of iron or iodine is pointed out by Schwarz, together with many valuable suggestions as to detail in the treatment of this anxious class of cases.—(*Boston Med. and Surg. Journ.*, 29th January, 1885.) *The Practitioner.* April, 1885.

Uniform Nomenclature of Physical Signs.—The following is a tabulated list of terms proposed by the British members and the American member of the Committee appointed at the meeting of the International Congress in 1881, to report on a uniform nomenclature of physical signs which occur in connection with the respiratory system.

PALPATION.

BRITISH LIST.	AMERICAN LIST.
Dr. Powell and Dr. Mahomed.	*Dr. Austin Flint.*
1. Vocal fremitus.	Vocal fremitus.
2. Rhonchal fremitus.	Rhonchal fremitus.
3. Fremitus.	Friction fremitus.

PERCUSSION.

1. Tympanitic resonance.	Tympanitic resonance.
2. Amphoric resonance.	Amphoric resonance.
3. Diminished resonance. Dulness.	Diminished resonance. Dulness.
4. Absence of resonance. Flatness.	Absence of resonance. Flatness.
5. Increased resonance.	Increased or vesiculo-tympanitic resonance.
6. * Bell sound.	Not included.

AUSCULTATION.

First Group. Varieties of Breath Sounds.

1. Exaggerated. Syn. Puerile. Compensatory. Supplementary.	Exaggerated, &c.
2. Diminished. Syn. Feeble. Weakened vesicular murmur.	Diminished, &c.
3. Suppressed. Syn. Absence of breath sound.	Suppressed, &c.
4. Prolonged expiration. General or local.	Prolonged expiration. High or low in pitch.
5. Interrupted respiration. Syn. Jerking, wavy, cog-wheeled.	Interrupted inspiration, &c.
6. Tubular. Syn. Bronchial. High-pitched blowing.	Tubular. Bronchial.
7. Vesiculo-tubular. Syn. Broncho-vesicular. Harsh, coarse, sub-tubular.	Broncho-vesicular. Syn. Vesiculo-tubular.
8. Amphoric.	Amphoric.
9. Cavernous.	Cavernous.

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* This term is applied, by some English writers, to a sound produced by percussion, a coin being used as a pleximeter, and the ear applied to the chest. It is supposed to be characteristic of pneumo-thorax.—A. F.

Second Group. Adventitious Sounds.

1. Rhonchi. Dry musical sounds, (*a*) Sonorous, (*b*) Sibilant.	Rhonchi or dry bronchial râles. (*a*) Sonorous, (*b*) Sibilant.
2. Stridor.	Stridor.
3. Râles. Syn. Bubbling râles, &c. (*a*) Medium, (*b*) Large. High or low in pitch.	Moist or bubbling râles. (*a*) Medium, (*b*) Large, (*c*) Small. High or low in pitch.
4. Gurgling.	Gurgling.
5. Clicking.	Clicking.
6. Crepitation. Syn. Crepitant râle.	Crepitant râle or crepitation.
7. Metallic tinkling.	Metallic tinkling.
8. Splash.	Splash.
9. Friction. (*a*) Dry, (*b*) Moist.	Friction.

Third Group. Varieties of Voice Sounds.

1. Increase of vocal resonance.	Increase of vocal resonance.
2. Diminution or absence of vocal resonance.	Diminution or absence of vocal resonance.
3. Bronchophony.	Bronchophony.
4. Pectoriloquy.	Pectoriloquy.
5. Ægophony.	Ægophony.

Preservation of Alkaloidal Solutions.—Much has been said and written on this subject of late, and many have been the suggestions. In our Pharmacopœia most of the alkaloidal solutions are ordered to be preserved with rectified spirit in certain proportions, the solution of sulphate of atropia being an exception. There cannot be much objection to the use of this preservative when the medicines are intended for internal use *per os;* but when required for dropping into the eye, ear, or other delicately lined part of the body, or for subcutaneous injection, the use of spirit then becomes objectionable because of the smarting pain produced. Liquor atropiæ, B.P., is a notable example, as also the hypodermic injection of morphia. In place of spirit we have many useful substitutes or means of avoiding this particular difficulty. 1. The use of neutral solutions of the alkaloids with tartaric, salicylic, and other organic acids. 2. The addition of phenol, thymol, salicylic acid, boracic acid, and such antiseptic substances in minute quantity. 3. The use of camphor water, glycerine, &c., as the solvent. With regard to the first method, tartrate of morphia may be found a very useful salt for subcutaneous use, as it is readily soluble in water, keeps fairly well, and causes less irritation than the acetic solution. The same applies equally to atropia solution, but it may be mentioned that each of these does not keep for very long periods without the usual fungus-formation. The second method may be objected to because of the powerful nature of the substances named, but there need be no fear, because a very small quantity suffices. The salicylates of the alkaloids are known to keep fairly well in solution even when exposed to the air, and their effect in such a combination is not impaired. Apomorphia solution may contain a trace of phenol to preserve it. Cocaine solutions are said to be useless after two weeks if not preserved by means of some such preparation as a saturated solution of salicylic acid, and very likely this may account for the failure experienced by some practitioners in obtaining the "local anæsthesia" said to be produced so markedly by this recently much used article of materia medica. The third method may be employed with considerable advantage for solutions of atropia, and doubtless also for eseria, pilocarpia, duboisia, and gelsemia, when they or their salts are easily soluble in this solvent. Glycerine dissolves some alkaloidal salts very readily, and when diluted with a little water, to thin the product a little, may serve well for hypodermic injection, the pain produced sometimes by the glycerine, especially when used hypodermically, being greatly mollified by the addition of the water. Another method recently recommended by Dr. Macnaughton Jones for the preservation of these solutions is based upon the supposition that light aids in bringing about these changes. He proposes the use of a glass bottle coloured blue or yellow, and provided with a vulcanite air-tight stopper flanged with india-rubber, and having a little vulcanite pipette surmounted by a small cap. By inversion and warmth of the hand a drop or more may easily be obtained, without waste of material (which may be expensive), and with the additional advantage that the alkaloidal solution keeps longer, as the air does not so readily exert its influence in introducing fungus spores.—*Birmingham Medical Review.* May, 1885.

Treatment of Hooping-Cough.—In his summary of treatment, in a clinical lecture delivered at the Philadelphia Hospital, Dr. John M. Keating emphasises the value of the steam spray, and the atomisation of medicated solutions, among which he ascribes value to Dobell's solution, eucalyptol, and thymol. With the bichloride of mercury he advises caution. Corrosive sublimate, which is now used for almost everything, he says, has also been applied here in the form of spray. He remarks that it is a dangerous drug to put into the hands of an inexperienced person, and as we have so many other useful remedies for this affection, he thinks it wise to avoid the use of corrosive sublimate. He has used listerine extensively, with good results, in the treatment of hooping-cough. He uses it in the strength of one drachm to two ounces of water, with an ordinary hand-atomiser, directs the nurse to apply it twelve or more times a day, and finds that little children, even babies, do not object to it. He adds to it tincture of belladonna, potassium carbonate, or ammonium bromide, as the case may demand. Chloride of ammonium he also finds of great service, in the form of spray.—*New York Medical Journal.* 25th April, 1885.—R. S. T.

Crimson Sweat.—Dr. L. M. Petrone relates the case of a young man of healthy antecedents, who stated that he had observed for several months an increased secretion of sweat about the axilla and pubes, and this secretion was of a pungent odour and a red colour. Microscopical examination of the hairs in these regions showed vast quantities of round red-coloured micrococci. They were seen along the entire length of the hair, extending even into the follicle. A few drops of perspiration taken from the axilla and placed under the microscope showed the same micrococci. Red perspiration loses its colour gradually in absolute alcohol, but more quickly in a solution of potash. The patient was relieved by using a five per cent solution of caustic potash. Chloroform, ether, and carbolic acid were tried without success. From the facts in this case, and from a study of the cases recorded by other observers, Dr. Petrone concludes that the phenomenon of red perspiration is probably due to a dermatomycosis localised principally in the hairy regions of the body, the parasite of which is a red, or at least chromatogenous micrococcus. The disease does not appear to be contagious.—(*Lo Sperimentale*, Nov. 1884.) *The Practitioner.* April, 1885.

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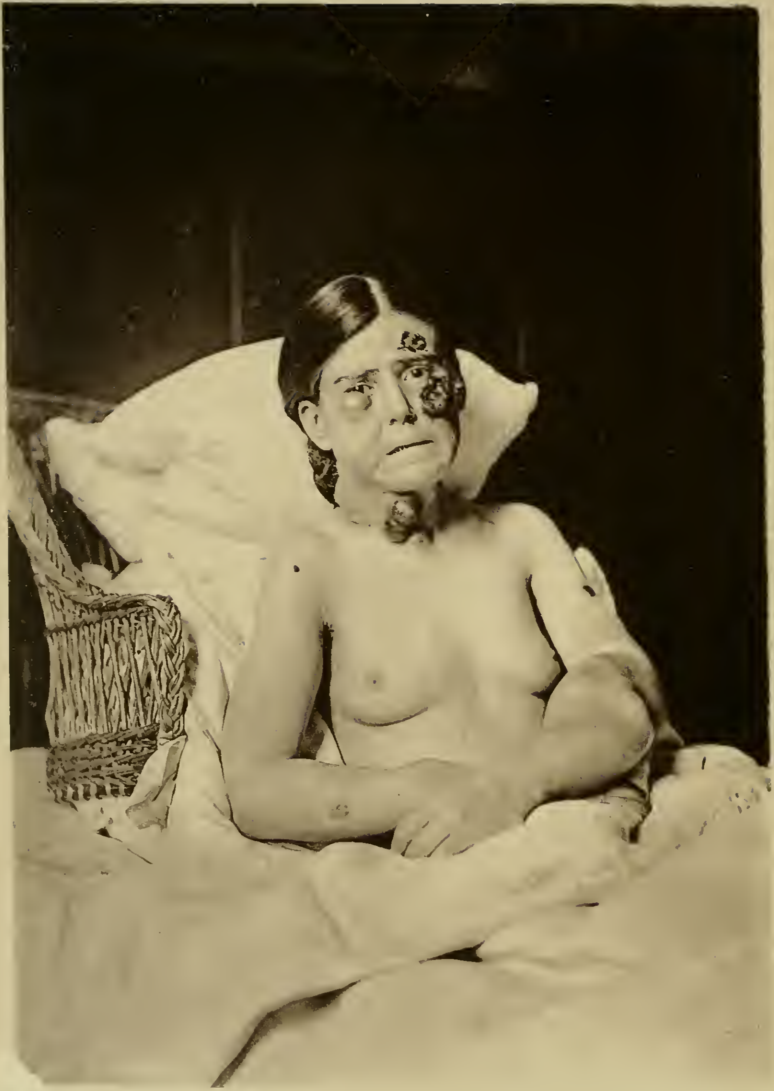
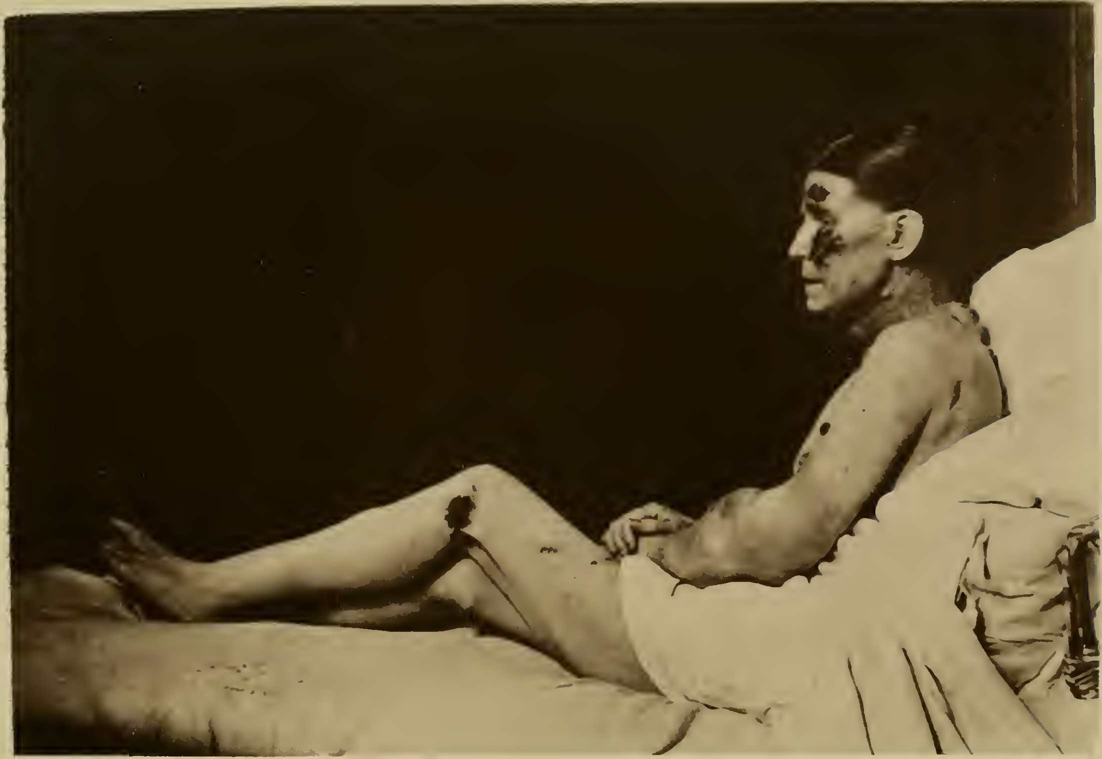


Maclure & Macdonald, Glasgow.

Path

Mr. Tennent's case of Melanotic Sarcoma.

Edin



MACLURE & MACDONALD, GLASGOW.

Dr. Tennent's case of Melanotic Sarcoma.

THE

GLASGOW MEDICAL JOURNAL.

No. II. August, 1885.

ORIGINAL ARTICLES.

ON A CASE OF MULTIPLE MELANOTIC SARCOMA.

By GAVIN P. TENNENT, M.D.,
Physician to the Western Infirmary, Glasgow.

(*With two Photographs.*)

When visiting a medical friend I was asked by him to see a "very peculiar case," and as I found I had never previously seen such a condition as the patient presented, I advised her to come into the Western Infirmary.

Mrs. J., housewife, aged 30 years, was accordingly admitted to my ward in the Western Infirmary, on the 27th of November, 1883, complaining of general debility, great hoarseness, difficulty in swallowing, occasional breathlessness, and more particularly of numerous swellings or growths, existing all over her body, which have a peculiar blue or bluish-black colour.

Briefly, the history and development of the illness were as follows:—

Patient had, from the time of her birth, a small brown spot or "mole" on the outer aspect of, and about the middle of the right forearm. About nine months ago she scratched this brown spot, with the result that it became abraded, and afterwards a scab formed. The latter was soon displaced by repeated rubbing and knocking, and the spot or sore became gradually larger and decidedly inflamed. As the sore was slow in healing she ultimately went to the dispensary of the Infirmary. She there received medicine (which she never took), and was directed as to the dressing of the sore. The sore continued to heal very slowly, but it closed ultimately a few months ago, and since then the spot has presented much the same appearance as existed on admission. It was then noted as being a small circular pigmented spot about five-eighths of an inch in diameter, not projecting much above the surface of the surrounding skin, but seeming to be a little uneven from the presence of some very small smooth nodular prominences. The colour of this spot is of a deep bluish-black, but specially so round its margin. In the centre of the spot the colour is paler. This pigmented portion of skin is freely movable over the subjacent tissues, and is situated on the outer aspect and about the middle of the right forearm. (See photograph). About seven months ago—that is, two months after the brown spot or mole had become abraded from scratching, a lump formed in the right armpit. This lump, after being poulticed for a considerable time, finally suppurated, and opened of itself, discharging much pus. It continued to discharge for nearly three months, and then slowly healed up.

Very soon after the abscess in the right armpit had wholly closed, the swellings or growths which now exist all over her body began to appear. The first swelling or growth appeared on the back of her neck, but the others followed so rapidly after the appearance of the first that she feels unable to state in any precise way the order in which they came. She positively affirms, however, that those situated upon the left side of her face and neck, and those on the left arm and leg, were among the first to appear.

Presently, her principal complaint is of the existence of lumps in her throat, which cause her much discomfort and difficulty in swallowing, and occasionally greatly oppress her in breathing. The latter difficulty she refers very pointedly to the throat, saying quite keenly that if she could only swallow those lumps she feels she would be all right. The throat condition began to trouble her about a fortnight ago, and the recent development of this state is made more distinct by her statement that up till two weeks ago her appetite continued to be fairly good; but that she then began to suffer much from cough and hoarseness, accompanied with considerable expectoration, which had a disagreeable odour and a viscid brown appearance. When she swallows, and even at times while speaking, she experiences sharp pains running up from the throat to the ears, but she has never had the slightest uneasiness or pain in any part of her chest.

Regarding her past history the patient states that she has been married nine years, but has never had any children or any miscarriages. She always enjoyed good health up till the commencement of her present illness, never having had any serious illness since childhood. For nearly a year her food has been, owing to poverty, very deficient in quantity and defective in quality. She has always been a sober woman, and her appearance amply confirms her statement.

About three years ago her husband had some form of venereal disease, but she positively asserts that she never had any such complaint, again earnestly stating that she had really never any ailment till the commencement of her present illness.

The catamenia have always been regular and normal, except that during the last four periods the discharge has been very scanty in quantity, and in appearance almost as clear and pale as water.

Regarding her family history, she states that both her parents died during her childhood, her father of what was called "black jaundice," her mother of consumption. She had one brother and three sisters: all of them, so far as she knows, are still alive and healthy.

Her condition shortly after admission was noted as follows:—Patient's general appearance at present indicates the existence of considerable anæmia, and this is specially evident in the mucous membrane of the lips, cheeks, and fauces. The conjunctivæ are clear, the tongue fairly clean and moist. Her expression is suggestive of considerable discomfort and anxiety.

The appearance presented by the tumours is most striking and peculiar. In all, seventy-two separate tumours are noted. These vary in size from that of a small bean to what is met with in the left arm near the elbow, where the tumour measures over five inches in length and four inches in breadth. The tumours are distributed pretty generally over the body, but the face, neck, limbs, and back are the parts most implicated; the thorax and abdomen least so. The appearance of some of the tumours is suggestive at first sight of glandular enlargement, but closer examination shows that the tumours do not exist in the situation of glands.

The position of the more important of these tumours is as follows:—one just above the left eyebrow, one below and rather to the left of the left eye, one just below the right eye and involving the right eyelid, one on the right side of the anterior aspect of the neck, one on the back of the neck, just to the left and rather below the seventh cervical spine.

On the right arm there is a small one just in front of the shoulder, and a larger one behind the arm at its upper third. On the right forearm, one in front of the elbow joint, two on the outer aspect of the forearm, and one on the outer aspect of the wrist, besides the original spot already mentioned.

The left arm, and specially the left forearm are, however, much more greatly implicated than the right. On the left arm twelve are noted of various sizes. On the left forearm there is one very large somewhat globular brawny swelling on the inner side, beginning just at the elbow, and extending downwards towards the wrist. This large mass seems to consist, however, of an aggregation of several large tumours extending round towards, and involving outer aspect of the upper part of the forearm, and gradually tapering off towards the wrist; in particular, there is one large additional sessile tumour specially connected with the mass on the inner aspect near the elbow. Near the wrist there is another large tumour, and there is also one on the ball of the left thumb.

On the right leg, one is noted just at the inner side of the popliteal space, one (large) at the upper third of the tibia on its outer aspect, and one near the ankle also on the outer aspect. None are found on the right thigh.

On the left lower limb, three are noted on the outer side of the thigh, one (large) just at the outer side of the knee joint, one on the front of the leg at its upper third, one (large) near the ankle at its outer side.

The site of nearly all the tumours specially mentioned can be readily realised in the two photographs which were taken some time after her admission to hospital. The photographs also show very clearly the appearance presented by the original spot, and many of the tumours on admission, as well as the ulceration or sphacelation of some of the tumours which occurred during her residence in hospital. The appearance presented by the tumours above and below the left eye, and on the outer aspect of the left knee joint is specially striking.

Careful examination of the tumours clearly proves that different structures are implicated. A few of them seem to be almost wholly cutaneous, some involve both cutaneous and subcutaneous tissues, some are confined solely to the subcutaneous tissue, while with others, as those on the left forearm, the deeper structures are manifestly involved, and muscular movements are in consequence greatly impeded.

Over some of the tumours the skin is adherent, and this is most marked where the skin is most intensely pigmented.

Over some, the skin is freely movable, and the tumour itself is readily moved over subjacent tissues; while with those where the deeper structures are involved, although the skin in some of them is movable, there is otherwise a feeling of decided fixation. The tumours vary considerably in consistence. The majority of them display firmness and hardness, and a few are somewhat nodular. Some are, however, of a decidedly softer consistence, and this is specially evident in the tumour situated on the outer aspect of the right upper arm. This tumour is also wholly free of discolouration.

The colour presented by the tumours is most striking and peculiar, and varies considerably in degree—some are of a bluish or slate-blue tint, some bluish-black, while others have an intense black appearance. The colouring is clearly pigmentary, it does not disappear on pressure, and there is nowhere any surrounding redness. In some of the tumours the pigmentary matter is manifestly in the substance of the skin, while in others the bluish colour seems to shine through the skin. This is very marked in the tumour situated under the right eye, and here the skin can be moved quite easily over the tumour. The same appearance and condition also exist in the large tumour on the neck. In a few both these appearances are presented, the surface of the tumour having superficially in the centre an intense black colour and surrounding this the shining blue tint. In some of the latter the skin has evidently become so distended as to present a glazed appearance, and at the central part where the intense black pigmentation exists the skin is adherent. The colouring is almost invariably limited to the area of the tumour, in many of them it ceases considerably within the margin of the tumours. The skin over the large mass on the left forearm is not greatly discoloured, but some parts have a somewhat dusky red or brownish hue. A few of the tumours, especially those on the right arm and leg, have, as yet, no appearance of colour or pigmentation of any kind.

The tumours are almost wholly painless. Only on very considerable pressure being made is pain experienced in any of them; and, otherwise, the patient simply admits a feeling of discomfort in a few, where the skin has become greatly distended.

Patient has some difficulty in opening her mouth, and, as already stated, she complains greatly of difficulty in swallowing, caused by the existence of lumps in her throat. Examination of the mouth and fauces shows several tumours having the same bluish appearance, implicating the fauces, specially on the right side; and one, in particular, of considerable size, situated near to, and partly involving, the right tonsil. Dr. Coats carefully examined the larynx, and found that "a pigmented growth is seen to project into the larynx anteriorly. It has its seat in the middle line and to the left, pushing before it the mucous membrane, just at the meeting place of the two cords, and involving also the anterior part of the left cord. The tumour is not of large size, and its surface is smooth. It has a dark brown colour."

The sputum is abundant, and consists of very viscid mucus, having a brown colour and very foul odour.

Examination of the blood microscopically shows nothing abnormal.

Percussion and auscultation of heart normal. The apex impulse is in the usual position.

Percussion and auscultation of lungs normal.

The liver, spleen, and thyroid gland are of normal size, and otherwise present no abnormality.

Examination of the urine shows it to be free of albumen and sugar, and microscopical examination only shows a few oxalate crystals, with some epithelial debris. The urine has a somewhat deep amber tint, and a specific gravity of 1030.

There is not the slightest enlargement of the axillary or inguinal glands, and the glandular condition elsewhere merits no special comment.

Pulse is 100, soft and compressible. Temperature 99°.

Some weeks after the patient's admission to the Hospital, one of the tumours was excised by Dr. Cameron, and it was found, on examination by Dr. Coats, to be "a large spindle-celled, melanotic sarcoma."

The subsequent progress of the case in hospital was characterised, in particular, by marked increase in the size of many of the tumours, and specially of the large mass situated in the left forearm near the elbow. With this increased growth the skin over a number of the tumours became so greatly distended as ultimately to sphacelate, and this was followed by ulceration and suppuration which continued for a considerable time, the discharge having a greenish-black colour and most offensive smell.

The order of development of these and other occurrences will be more clearly realised by a few brief extracts from the Ward Journal.

Early in *February, 1884*, one of the small tumours on the left forearm sphacelated, and this was soon followed by a similar condition in the tumours situated above and below the left eye.

On 4th March the note states that "the remnants of the tumour which sphacelated on the left forearm were clipped off by scissors a few days ago, and the sore, after being appropriately dressed, has now healed, and all that remains is a black stained spot, partly covered with a black crust. The base of the tumour seems, however, to extend some distance beneath the surrounding skin, the subcutaneous tissue being evidently still involved. The tumours above and below the left eyelid are still discharging greenish-black offensive matter."

14th March.—"Patient complained this morning of pain in left cheek near the ulcerating and suppurating tumour below the left eye. On examination there is found marked redness, heat, and swelling over the left side of face, and there is also very great pain on pressure. The temperature, which had been throughout, till now, normal, is 104°. Pulse 120."

15th March.—"There is still great redness, heat, swelling, and pain in left side of face. Patient has been much troubled with sickness and vomiting. Highest temperature during the past twenty-four hours 104·2°; lowest 101·4°. Pulse 128, soft and feeble."

20th March.—"The attack of facial erysipelas has now greatly subsided. The swelling, redness, heat, and pain have all markedly lessened. Pulse 90; temperature 99°. Sickness and vomiting have wholly ceased."

1st April.—"The face has now assumed its usual appearance. The temperature has been, since last note, continuously normal. Appetite somewhat improved."

10th April.—"Patient is gaining strength, and is now able to be out of bed for several hours every day. Appetite decidedly improved. She complains considerably of her hoarseness, and of occasional attacks of dyspnœa. The tumours above and below the left eye are still discharging. The large tumour on the left forearm is increasing greatly in size. The skin over the greater part of this large mass is still not greatly discoloured, being of a dusky red or brownish colour, but the skin over the additional tumour connected with this large mass has now a greenish-black tint, and it is also here so greatly distended as to present quite a glazed appearance."

20th April.—"The tumours on left side of face are still discharging. The tumour on right side of face is evidently enlarging. Patient is now taking her food fairly well. The urine has been frequently examined throughout, and it has always been found wholly free of albumen and sugar. The colour "has varied between a deep amber and a decidedly pale straw tint, most frequently the latter."

6th May.—"Since last note patient has complained much of the pain and difficulty in swallowing, and also of the hoarseness, along with more frequent and severe attacks of dyspnœa. The tumours on left side of face are still discharging. Two tumours have also, since last note, sphacelated—viz., the one situated on the outer aspect of left knee, and the other at the inner side of the popliteal space on the right leg. Before the skin over the former gave way, the patient suffered intense pain, but since the sphacelation the pain has wholly ceased. For the last few days the urine has presented a somewhat peculiar colour, and to-day, while quite transparent, it may be said to have a greenish-black tint. It is still, as it always has been, free of albumen and sugar. Temperature normal."

23rd May.—"The four tumours are still discharging the same offensive greenish-black matter. The urine, though varying in hue, has continued to show the same greenish-black tint. Patient is evidently losing greatly in strength, and complains much of anorexia and the difficulty in swallowing."

9th June.—"During the last ten days there has been a decided febrile tendency, the temperature ranging between 102° and 104·4°; the pulse between 120 and 140. Patient's general condition now indicates profound exhaustion. The difficulty in swallowing has been steadily increasing, and the attacks of dyspnœa becoming much more frequent. The breathing is now greatly oppressed, and the sputum, which has throughout always been pretty abundant, and of the character stated, now contains a considerable quantity of blood. The condition of the left arm also causes her great distress, the pain here being caused by the extreme degree of distension, and the feeling of pressure from within on the skin and other structures of the forearm. The tumours on the left forearm near the elbow have of late increased very greatly in size, and the glazed appearance presented at some parts is highly suggestive of early sphacelation. The circumference of the left forearm near the elbow measures over 12 inches, while that of the right is barely 8 inches. Elsewhere, the tumours are painless.

"Of the tumours which have sphacelated, the one above left eye is now drying up, being already in part covered by a black crust. That below the left eye still requires to be dressed several times a day, the discharge being still considerable, and of a very offensive odour. This tumour measures 2½ in. by 1½ in. The surface of the tumour is now very little above that of the surrounding skin, and it has a very deep, bluish-black colour. The tumour situated on the outer aspect of left knee is still discharging copiously, and one of the hamstring tendons is now fully exposed. The tumour at the inner side of the popliteal space on the right leg has now dried up; but there still remains a wart-shaped mass, projecting considerably beyond the surface of the surrounding skin, and this is covered by a black crust.

"There are still several tumours which have always continued to remain wholly free of discolouration. These are, as on admission, situated on the right arm and leg. In the arm, the tumour specially mentioned as seated over the triceps on the outer aspect of the arm has increased greatly in size, being now quite as large as a turkey's egg. It has still the same somewhat soft consistence, and remains free of discolouration of any kind. It is only painful when considerable pressure is made over it. The skin is freely movable over it, and it does not in any way interfere with muscular movement. The other tumours on the right arm, which are not discoloured, present similar characters, except that they are firm and hard, and somewhat nodulated.

"Near the ankle on the left leg, and on the calf of the right leg, there are two tumours, which have also similar characters to those just mentioned on the right arm. The one seated on the calf of the right leg has not the slightest discolouration, but in that on the outer aspect of the left leg, near the ankle, there is now a distinct appearance of the bluish colour shining through the skin.

"Of the other tumours particularly mentioned on admission, the present condition of the following may be briefly stated.

"The tumour below right eye now measures over two inches. It is still rather less deeply pigmented than the other tumours, having a slate-blue tint. The skin can be easily moved over the tumour, and the sebaceous follicles of the skin can be readily seen. The pigmented tumour has all the appearance of shining through the skin.

"The tumour at the back of the neck now measures nearly 3 inches. The skin, which is movable, over this tumour presents a deep blue colour, but towards the margin of the tumour the colour becomes much lighter in tint. A little below, and to the outside of this tumour there is a wart-shaped growth. This is raised a fourth of an inch above the level of the surrounding skin, and it is nearly one inch in diameter. The colour of the skin here is literally black, except towards its margin. The skin over the summit of this little tumour is adherent.

"The tumour on the right side of the anterior aspect of the neck now extends from the hyoid bone to the right sterno-clavicular articulation. It measures vertically and transversely from base to base about 2½ inches. It is divided into two lobes by a marked transverse furrow. The upper lobe has a deep blue, the lower lobe a light blue colour. The skin, which is somewhat glazed, is easily moved over the tumour.

"The urine has continued to present the same peculiar greenish-black colour. There is no albumen."

11th June.—"Patient died this forenoon from asthenia."

The conditions observed *post-mortem* are detailed in the paper by Dr. Joseph Coats, which follows this one.

Cases of multiple melanotic sarcoma, presenting such marked and extensive superficial appearances are certainly rare, but besides its rarity this case is undoubtedly of special interest and value. It is a most typical example of one mode of origin of the grave disease known as multiple melanotic sarcoma. Meddlesome interference with a mole has long been popularly spoken of as highly dangerous, but when the previous good health, along with the striking sequence of events which followed in the case of this poor woman are fully considered, it is certainly not surprising that she should herself have always with such keenness and emphasis reiterated her affirmation that the whole of her ailments had resulted from the scratching of that old brown spot or mole which had always existed on her right forearm.

The condition presented by this woman might, on superficial examination, have been appropriately designated one of multiple cutaneous melanotic sarcoma, but careful examination showed that the subcutaneous tissue and deeper structures were far more extensively involved than the true skin; indeed, even where the latter was implicated, it was usually found to be secondary to the existence of a subcutaneous or other tumour. The condition revealed on *post-mortem* examination showed the most general dissemination of those pigmentary tumours.

The malignancy of melanotic sarcoma is certainly displayed in the progress and results of this case with remarkable clearness, not only by the mode of origin and development of the tumours and their wide dissemination throughout the body, but also by their rapidity of growth and their sphacelating and ulcerating tendency. Two months after the scratching, &c., of the mole, the lump appeared in the right armpit, and this finally opening of itself continued to discharge pus for nearly three months. Very soon after it closed the tumours appeared over the body, and they came so rapidly that she was only able to state with certainty the priority of appearance of a few of them. Death, therefore, resulted in about fifteen months from the date of the scratching of the mole, and in about ten months from the time of the first appearance of the tumours.

Further, however, the intimate connection of the pigmentary matter with the development of the tumours is shown with as remarkable precision and certainty by the fact that, although some of the tumours during life seemed to be wholly free of discolouration, every tumour was found on *post-mortem* examination to contain pigmentary matter. As bearing still further on this question, the fact is worthy of special note that, where the tumours sphacelated and ulcerated, there ultimately occurred, after a time, along with the continuous escape of pigmentary discharge, a decided tendency to spontaneous healing or cicatrisation.

Several other facts connected with the progress of the case merit special mention.

The absence of any glandular implication is specially interesting in connection with the mode of development of the disease. The greater implication of the left arm and leg, both as to the number of tumours and the extent of pigmentation is also striking. Hardly any were found on the right thigh, and but few comparatively on the right arm and leg; and it was here especially that the tumours were met with which presented throughout no discolouration. It is to be remembered that it was in the right armpit that continuous suppuration occurred for nearly three months. The painlessness of the tumours, except where great distension of skin had occurred, was throughout well marked. The peculiar colour of the urine was probably the result of the absorption of melanin, as no tumour was found directly implicating the renal structure. This peculiar colour of the urine, however, only existed during the last five weeks of the patient's life.

No importance can be attached to patient's indefinite statement as to her father having died of "black jaundice." There is every reason to believe her statement as to venereal disease.

In conclusion, I must express my conviction that the mode of origin, development, and progress of such a case of melanotic sarcoma strongly indicate the propriety of the more frequent and prompt complete removal of moles or pigmented spots by the hand of the surgeon.

ON A CASE OF MULTIPLE MELANOTIC SARCOMA, WITH REMARKS ON THE MODE OF GROWTH AND EXTENSION OF SUCH TUMOURS.

By JOSEPH COATS, M.D.

(*Read before the Pathological and Clinical Society of Glasgow, 12th May, 1885.*)

This case of melanotic sarcoma seems to me peculiarly worth recording, because tumours of this kind afford an opportunity of tracing the mode of extension of sarcomas in general. It is true that melanotic tumours are peculiarly malignant in the sense that they are prone to develop secondary tumours in different parts of the body. But we may probably infer that their mode of local and general extension is not different to that of unpigmented sarcomas. The pigmentation of the cells in the melanotic sarcomas enables us to distinguish them readily, and so gives us an opportunity of determining the mode of extension. Before entering more particularly into this question, however, it will be proper to give a sketch of the general facts of the case.

The primary tumour in this case was, according to the history given by Dr. Tennent in the paper preceding this one, a structure which, at the time of the *post-mortem*, seemed very insignificant as compared with the large and abundant secondary growths. It is preserved in the Museum of the Western Infirmary, and is here, along with other preparations, to be inspected by the members of the Society. It was situated on the posterior aspect of the right forearm, four inches beneath the elbow. It has the form of a circular pigmented spot, about three quarters of an inch in diameter, with almost no elevation above the level of the skin. It occupies the substance of the cutis vera, and is covered with epidermis. The central parts are somewhat cicatricial in character, and viewed from without, nearly devoid of pigment. On transverse section, a deeply pigmented structure was found to occupy and replace the cutis to the extent of the affected area, although it does not project to any considerable extent, either deeply or superficially.

In contrast to this we have the numerous secondary tumours, many of them of large size. In regard to locality we may distinguish those of the skin and subcutaneous tissue, of the substance of the heart, of the muscles, of the pharynx and œsophagus, of the intestine, of the subperitoneal tissue, of the mediastinum, and of the brain.

The *skin* presented in diverse regions a large number of projecting tumours. Some of these were superficial, and presented a deep blue or blackish colour, seen through the thin layer of skin on the surface. Others were deeper, and presented rounded elevations with very little visible pigmentation. The more prominent ones were the following:—There was a large mass composed of a double tumour on the anterior aspect of the neck; the upper piece measuring 2½ inches in diameter, with a projection of 1⅛ inch; and the lower one 1 inch in diameter, with a projection of half an inch. The upper tumour was glossy on the surface, and rather soft, and presented somewhat of a reddish-brown colour. There was an ulcerated tumour on the left cheek, 2 inches in length, and 1¼ in breadth. It did not project much, but the ulcerated surface was surrounded by a brown crust. In a similar situation on the right cheek there was a smaller ulcerated but markedly prominent tumour. This one partly involved the lower eyelid, considerably diminishing, by its projection, the palpebral fissure. When the tumours of the skin, whether more superficial or deeper, were divided, they were always found to present a nearly coal-black colour, with a tint of brown. They involve, as shown in some of the pieces preserved and exhibited, the cutis, sometimes almost in its entire thickness, sometimes only in its deeper layers, and they always pass deeply into the subcutaneous adipose tissue, the greater part of their bulk occupying the subcutaneous tissue.

In the muscular substance of the *heart* there were several tumours. The largest, which is preserved, occupied the septum between the auricles. It measures an inch and a half in diameter, and presents the same coal-black colour as the cutaneous ones. It projected into both auricles. The other tumours in the heart were small in size; one was found in the substance of the right ventricle, and one in that of the left.

The tumours of the *muscles* had this peculiarity, that the tumour tissue seemed to replace the muscular substance, not taking the form of distinct growths in the muscles, but assuming the shape and position of the muscles themselves. The left forearm was greatly swollen, and the right less so, and on cutting into these parts it was seen that the muscles were replaced by a dark brown or black substance. This was the case also in the legs. It was particularly noticed that the tumour tissue took the place both of muscles and tendons, and this was very strikingly seen in the case of the extensor pollicis, a black mass of tumour curving round the radius in the position of the tendon of this muscle. The brown tissue of the muscles was in many parts broken down, so that on making sections or handling the parts a brown juice was furnished.

The *pharynx* presented in its posterior wall a bulky projecting tumour, which extended so as nearly to touch the dorsum of the tongue. At its lower end this mass involved the posterior wall of the œsophagus for a short distance. At the base of the epiglottis there was an ulcerated tumour of considerable size, which was examined at an earlier stage, during life, and found to project considerably.

In the *small intestine* there were two somewhat bulky tumours which have been preserved. The larger of these has a diameter of two inches, this long diameter being transverse to the axis of the intestine. The centre of this tumour is at the mesenteric attachment of the gut, where it is constricted, and from this it forms rounded bulging masses on either side, occupying the wall of the intestine and surrounding it, except for a distance of half an inch. The other tumour is much less bulky, but it also almost forms a girdle round the intestine. In both cases the peritoneum is for the most part continuous over the tumour, but in one or two places the black tissue of the tumour occupies a certain area on the surface.

In the *peritoneum and subperitoneal tissue* there were numerous tumours of various sizes. In several places the peritoneum was dotted over with abundant small pigmented spots, particularly on the posterior aspect of the transverse meso-colon, and on the posterior wall of the abdomen. There were a few black tumours in the mesentery. A bulky pigmented tumour, three quarters of an inch in diameter, was found in the subperitoneal tissue in front of the hilus of the right kidney. It looked at first as if this tumour was connected with the kidney, but, although closely in contact with the surface of the organ, it was outside its proper capsule and did not involve the ureter, pelvis, or kidney tissue proper.

In the *anterior mediastinum* there were several small pigmented masses.

There were a few small black tumours in the *brain*. These occupied for the most part the superficial parts of the convolutions, and only one was discovered in the internal parts, this one having its seat in the nucleus caudatus of the corpus striatum.

There were no tumours in the liver, spleen, kidneys, suprarenal capsules, bones, stomach, or uterus. There were old adhesions in the neighbourhood of the uterus, the fimbriated extremities of the Fallopian tubes being involved in the adhesions, and the tubes themselves considerably dilated. There was a cyst as large as a small apple in the left ovary.

Looking to the facts of the case in connection with the history, it would appear probable that most, if not all, the secondary tumours had a nearly simultaneous origin. For some reason or other, the primary tumour seems to have given off at a particular time material which was carried by the blood and deposited in the numerous localities in which these secondary tumours were found. We may presume that this occurrence resulted from the penetration of the tissue of the primary tumour into a vein, but there is no evidence now available to demonstrate this.

The various tumours have been, up to the death of the patient, in a condition of active growth, and when examined under the microscope in their section, indications could be obtained of the mode of advance. The growths, both primary and secondary, are composed of large elongated cells, not the typical narrow spindles of the ordinary fibro-sarcoma, but broader in proportion to their length. Most of the cells have a deep brown colour, due to the presence in their substance of fine globular granules of pigment. Although all the cells are not pigmented, they are sufficiently so to make the colouration an indication of the extension of the tumour in relation to surrounding parts.

It is readily seen that the tumours, whether primary or secondary, are not distinctly defined, but at their margins blend or dovetail with the surrounding parts. But more than this is visible. Beyond the margin of the tumour, and removed from it often by a considerable interval, single pigmented cells are visible, as if they had passed out from the tumour into the surrounding tissue. This is readily shown in the cutaneous tumours, especially where they have partly involved the subcutaneous fat. In that case it can be seen how, in the midst of the adipose tissue outside the tumour, the angles between the fat cells are frequently occupied by pigmented cells. These cells are frequently small, and do not present always the typical spindle shape, but their pigment seems to demonstrate their origin. A similar condition was also seen in the brain. The tumours here were of small size and obviously were extending slowly, the close texture of the brain scarcely allowing of such rapid penetration of the cells.

But here also, outside the tumour the pigmented cells were visible, particularly in the neighbourhood of vessels, the external connective tissue coat of the vessel apparently allowing of a freer extension.

The mode of extension in the muscles was very interesting. At the marginal parts of the muscular growths it could be seen that the pigmented cells were penetrating between the muscular fibres, so that in many places there was a single row of cells between two fibres. The cells in this situation seemed to undergo rapid increase, and their growth was accompanied by atrophy of the muscular fibres. Even after the total destruction of the muscular cylinders, the cells were still in columns or rows, retaining the arrangement of their original formation, and repeating to some extent the structure of the muscle itself, rows or columns of cells taking the place of the muscular cylinders. This condition gives a ready explanation of the fact already noted that the growth in the muscles has the external configuration of the muscles, although with considerable enlargement, as if the tumour tissue were moulded on the existing muscular tissue.

The facts already stated seem to prove that from these tumours cells moved off to plant themselves outside the tumours, and by subsequent multiplication to extend their boundaries. The only other alternative is that some material of an infective nature, not cellular, has passed out from the tumours, and has induced the existing connective tissue cells to enlarge, become pigmented, and multiply. This view, however, has no facts to show in its favour, and the more natural and obvious explanation is that the tumour cells with their pigment proceed from the growth into the surrounding tissue. This implies a power of spontaneous movement in these cells; they must be, to some extent at least, amœboid, so as to be able to pass among the tissues. The direction of their migration will be determined by the structure of the tissue, and we have seen that, in the case of the brain, they mostly pass along the loose connective tissue outside the blood-vessels, finding the more intricate brain tissue difficult to penetrate.

To the practical surgeon the importance of these considerations will be apparent. It may be inferred with great probability that the local extension of unpigmented sarcomas is similar to that of these pigmented tumours. If this be admitted, then we may state in regard to sarcomas generally, that, outside the obvious boundaries of the tumour there are individual cells planted, which have passed from the tumour and are capable of multiplying and reproducing the tumour tissue. These cells are amœboid, and they may move off to some distance from the tumour, extending preferably by the loose connective tissue. When the surgeon removes a sarcoma, therefore, he may leave behind him many cells which are capable of forming fresh tumour tissue, and so causing a recurrence of the disease. The operation should be so executed as to remove the tissue for some distance outside the apparent limits of the growth.

I have said nothing here as to the general extension of the tumour, as the facts observed did not afford any indications as to this.

In the Museum of the Western Infirmary there is another preparation which is of interest in relation to the subject considered here. The case was one of pigmented sarcoma of the leg, the headquarters of the tumour being in the popliteal space, but with extension outwards from this. The mass in the popliteal space was as large as the closed fist, and there was another mass of similar size in front of the femur and extending up the thigh. There were various subordinate masses almost surrounding the femur and upper end of tibia. The extension into the knee-joint was particularly interesting. The ligaments and synovial membrane are converted into a deeply brown soft tissue, the synovial fringes being repeated, but exaggerated, in this tissue. The patella presents a peculiar appearance in the midst of the deep brown tissue. The cartilage is mostly preserved, but in the surface there is a small dark nodule. This tumour is a spindle-celled sarcoma, many of the cells in which are unpigmented, but a minority with brown or yellow pigment granules. In the tissue around the tumour and at a considerable distance from its mass there are frequently visible cells with a rather bright yellow pigment. Here also, evidently, the neighbouring parts have had planted in them the seeds of further extension of the tumour, and these seeds are often at a considerable distance from the primary growth.

DARWIN'S DOCTRINE OF EVOLUTION IN EXPLANATION OF THE COMING INTO BEING OF SOME DISEASES.

By WILLIAM AITKEN, M.D., F.R.S.,
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Introductory.

The series of papers under the above heading, which the writer is privileged to publish in the pages of the *Glasgow Medical Journal*, owe their existence to the necessity of finding a suitable topic for an address to young medical officers who, as Surgeons or Probationers at Netley Hospital, are about to commence their specific course of life in the British and Indian Military Medical Services of the Queen.

It occurred to the writer that, taking a subject which had much interested himself and many others in the profession both recently and in the old times before us, he might be able to present it in such a way as to induce them to look at various pathological questions from a comparatively new standpoint, different from that which they had been accustomed to during the short medical curriculum they had passed through to qualify for practice, when the time at their disposal did not permit them the opportunity even to think about them.

By the selection of a topic such as the followin pagesg concern, he hoped to awaken in young, ardent, ingenuous, and impressionable minds a desire to work out for themselves various philosophical problems in pathology which the nature of the services they were about to join would give them not only leisure to study and work out, but would give them also opportunities which cannot be surpassed, in many climates and in many lands, to add to our knowledge in the direction hereinafter indicated, and of which the merest outline could only be given in a short address.

Pathology is a growing science, and its subject matter is extremely varied. "It must study disease on many sides—the side of its anatomy and its physiology—of its geography and ethnology—of its history, and of its natural history."

In the several editions of *The Science and Practice of Medicine*, the writer has dwelt much upon the necessity of specially investigating *doubtful* or *anomalous* cases of diseases, and especially of *fevers* commonly so called. These require careful methods of investigation. They are of the utmost importance to science and to our knowledge of diseases, so that extended information regarding them will either connect them with forms of zymotic diseases between which they seem to stand; or these *anomalous* cases will eventually separate themselves into distinct forms whose history is still unknown.

There is also the long standing question of the *de novo* origin of diseases, "concerning which, even if we are satisfied that the cases we may see are, in a sense, of *de novo* origin, we are still only at the entrance of one of the most important problems concerning the disease. A particular house, hut, or camp-tent having in it a case—say of enteric fever or of cholera—wherein do such particular habitations differ from the multitude of apparently similarly circumstanced habitations that have no fever or other ailment in them? And what are the circumstances of to-day that have produced the fever to-day, and that did not produce it six months ago? There must be differences, or the effect would not be different. The nature of these differences, however, is, for the present, beyond our present knowledge; and it is by the study of *differentiating circumstances* in cases where we can exclude antecedent occurrence of disease that we may best hope to discover the nature and affinities of the fever."*

By following such directions and methods of research as are suggested by a study of Darwin's theory of Evolution in explanation of the *coming into being* of various types of disease, constitutional and zymotic, the writer would indicate in these pages a standpoint from which to view diseases, which military medical officers have peculiarly favourable opportunities for investigating, and for increasing our knowledge of pathology regarding the special topics with which these pages are concerned.

> "Is there any thing whereof it may be said, see, this is new?
> It hath been already of old time, which was before us."—Eccles. i, 10.

SECTION I.—*Questions for Special Inquiry.*

From information I have received from each of the fifty surgeons on probation assembled, to commence the fiftieth Session of the Army Medical School, and which is presumably authentic, I am in a position to say that your united ages amount to the sum total of 1,187 years, which gives for each of you an average of over 24 years—that the youngest of you is rising 22, and the oldest is rising 28.

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* Dr. George Buchanan "On Some Directions for Scientific Work." *Medical Times and Gazette.* 30th October, 1875.

That being so, about two years before the oldest of you was born, and eight years before the youngest of you made a similar advent—*i. e.*, just about thirty-one years ago, a war commenced between Russia and this country, when a British army of 25,000 men was landed at Gallipoli unprovided with field equipment, with no medical comforts, and the sick having only one blanket each, with a thermometer at night standing at 28° Fahr. No army ever took the field worse provided; and ever since that time, during the past 30 years, the state of the army and its organisation has been constantly before the public either by details in despatches or in private letters from the seats of many small wars, by speeches and questionings in Parliament, by reports of numerous and varied commissions, by boards of Parliamentary inquiry, and such like, the main object held in view as the aim of such attentions being to devise rules and regulations for our military service, embracing the functions of the medical staff, as most immediately concerned with preserving the health and prolonging the life of the soldier; and in these functions you will be prepared here for taking your part. The close of that war, commonly called the Crimean war, "was an event which proved the turning point in the health history of armies." During the past 30 years (while each of you has been growing up to man's estate) we have had a succession of wars of greater or less political importance, in the conduct of which the lessons learned from a dearly bought experience have been of the utmost value to military hygiene.

The conduct of the Crimean war, and of all the campaigns in the last decade of the eighteenth and the first 15 years of the present century was such that a very large proportion of the men engaged in them perished from causes which are not considered to be the necessary or unavoidable results of war. But we know that history is apt to repeat itself, especially in disastrous errors, so that the same question often repeats itself —namely, "Must what happened in these historic campaigns of the past and present century necessarily happen again?"

The great success which has attended the working of the army medical staff under its new organisation, as shown in the campaigns in Afghanistan, South Africa, Egypt, and the Soudan, warrants the hopeful belief that such unfortunate disasters are beyond the possibility of repetition;—that we are not likely again to hear of a British force being set down in a foreign land so unprovided for as was our army when it landed in Gallipoli in 1854; that the success which has attended the recent good work in Egypt and the Soudan imposes upon you and those who come after you the obligation of maintaining the high reputation which the medical staff has acquired under the present administration of its experienced chief; and of increasing the efficiency as well as the professional and scientific character of the service, so that it always shall be as it has been heretofore—"*a very present help in time of need.*"

There is a power in the human race "whereby the present ever gathers into itself the results of the past;" and you are here on probation to learn the lessons which have been gathered from the costly experiences of past times, which will be variously formulated for you by my colleagues, as they explain how an army is to be maintained in health in times of peace and of war; by what rules and principles you are to be guided in the discharge of your functions as an important part of the military machine, so as to prevent losses which are preventible, and which occur from sickness rather than from injuries received in the fight. "War pestilences are the real enemies with which the general and his soldiers have to contend." The military enemy they meet with in battle does comparatively little harm; and the first principle to be acknowledged as a guide, alike for the military commander and for the medical officer, is "that the sanitary care of an army is an essential part of strategy in all the operations of war, and that it demands knowledge of a special kind with prevision and preparedness, based on that special knowledge."

The records of history further teach us *that* it is not till long after a war has ended that the darker stories of famine, disease, and death, with all their harrowing details, become known to the world, and then mainly from medical journals and the periodical newspaper press; and also that there are many things concerning wars and campaigns which we never know. The great mortality, for example, that attended the expedition to Walchern in 1809-10 has never yet been explained as it might have been. An eminent provincial medical man of that time—Dr. James Clarke, Physician to the General Hospital at Nottingham—called special attention to the cases of fever from this ill-fated expedition which he had under his care in the civil hospital of that city. His notice of them in the pages of a medical journal * struck a far-resounding keynote when he wrote that—"It certainly will be of great national advantage if the medical men who attended our army in Zealand, and since their return to this country, present the public with information on the following very interesting points of inquiry:—

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* *Edin. Medical and Surgical Journal* for July, 1810, p. 262.

"(1.) Topographical accounts of the different situations which the troops occupied, and in what manner they were accommodated.

"(2.) History of the disease at each of these stations, arranged as much as possible on a similar plan to afford a facility of comparison.

"(3.) The causes producing the disease, and whether referrible to one or to many combined. Whether the bodies of the soldiers were predisposed by previous hardship in Spain, or by any irregularity of diet, or by want of proper clothing on the expedition.

"(4.) Did one situation induce the intermittent and another the remittent fever; or were they considered degrees of the same disease, the former passing into the latter when most violent, and becoming again intermittent at the close of the disease? Or did this depend on constitutional disposition?"

These are questions which embrace a most comprehensive pathology; but they never have been, and are not likely ever to be replied to now as regards that particular campaign. Nevertheless, they may still be put *mutatis mutandis* as to the diseases which may befall our troops on foreign service, such as now in the Soudan, and generally in tropical climates. Therefore they are questions which continue to call for the attention of those like you, who in time to come will have the opportunities and the competence to answer them. Moreover, they embrace topics which eminently pertain to the subject matter of this series of papers.

The scope and methods of pathological investigation have vastly extended since the Walchern days, and the aspects of pathology "are so constantly changing that a single year's work brings us a multitude of new and often puzzling facts; and although the issues are of the most momentous kind, not even the wisest and most judicial minds in the profession can always see their way to a clear and definite opinion.*

Hitherto you have been learning how to diagnose diseases and to differentiate them one from another; and these functions will continue to be of very great importance for you to discharge *with the utmost care.* It appears to me, however, that more attention than heretofore must be given to differentiate more definitely the innumerable determining factors which combine to produce diseases, and that more attention must be paid to the *processes of disease* than to its *products*, and to the dynamic changes which precede the structural ones in the patient. Individual diseases must be traced more closely to their sources, so as to prevent the concurrence of factors which may originate them, and your attention must be ever alive to the sum total of circumstances preceding and surrounding the soldier's life, which are the determining factors that bring about his ailments.

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* Dr. Charles Creighton "On the Autonomous Life of the Specific Infections."—*Brit. Med. Jour.*, 4th August, 1883.

The tendency of pathology during the past century, and especially since the days of Louis and Laennec, has been "to *specifise* diseases, and so to advance our knowledge of them by insisting on details in symptoms, and in the appreciation of minute differences." * So much has this tendency to individualise diseases prevailed, that it was at one time held that no two specific diseases could co-exist in the same person. But gradually this position has been shown to be untenable, and we are more and more forcibly reminded, by an accumulation of experience, that numerous disorders come before us as *anomalous cases*, in which disease, it is said, "does not breed true"—in which hybrid or nondescript symptoms are developed. Such "anomalous cases" do violence to our cherished theories, belie the descriptions of typical diseases in our text-books, and defy our best classifications of them—even that of the Royal College of Physicians of London, which has just completed a second effort in this direction.

Nature (as the aggregate action and product of many natural laws or ascertained sequences of events, †) will have none of the hard and fast lines laid down in definitions of diseases such as our text-books and systematic treatises contain, nor will she always conform to the classifications of Royal colleges. Her regularity is "the first postulate of science; at the same time, along with this regularity there is a vast amount of irregularity with which, as yet, science cannot deal."

All organic existences possess an inherent tendency to vary. "The world, as we see it, is full of changes; but these changes are found to be subject to invariable or almost invariable laws —the *law of variation*, which it is the aim of science to find out in all its departments," ‡ and medicine is no exception.

We must therefore recognise this fact as regards diseases, that while uniformity is general, it is not universal. Hence it comes that, in our present state of science, our standard text-books and classifications do NOT embrace the whole phenomena of diseases; and in spite of the influence of even such precise and definite objects (seen or imagined) as "germs," "bacilli," or "bacteria," which have been identified or associated with numerous diseases, the hitherto accepted doctrine of the specificity of disease must to some extent be modified. But the modifications I am about to suggest as necessary are not at the instance of the bacillary discoveries which have been so extensively announced in recent years, nor at the instance of the varied hypotheses based upon these recorded discoveries, which involve so many points of contention. "While some of the points of contention appear to be proven, others are only probable, and they are neither universally nor unconditionally accepted. The exclusively causal agency of bacilli in the diseases with which they have been associated, although extremely plausible, is not conclusively proved; and a great number and variety of experiments of contrast are yet needed to satisfy a just scepticism."*

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* W. T. Collins, M.D., B.S., B.Sc.Lond., *Specificity and Evolution in Disease*, 1884, p. 2.

† *Variation of Animals and Plants in the State of Domestication.* 1868. Two vols. Vol. I, p. 6. By Charles Darwin.

‡ Dr. Temple in *Bampton Lectures for 1884.*

And, however difficult it may be (as confessedly, *it* IS difficult) to look at whole classes of facts *from a new point of view,* we must, nevertheless, sometimes make the effort, and endeavour to look at the causation of diseases from a higher standpoint than we have hitherto held. We must learn to expand our ideas so as to differentiate more efficiently the concurrent factors which make up the sum total of those surrounding circumstances and antecedents of life's history which produce diseases.

SECTION II.—*Darwin's Doctrines of Evolution in relation to Pathology.*

In our efforts to do this, we may, with advantage, recognise as a working hypothesis, Darwin's great doctrines of evolution as specially competent to account for the "coming into being" of some diseases, and as ruling and directing what we have hitherto called "specificity" as applied to them. It is only by the recognition of such a working hypothesis as that of evolution that we can account for the many "anomalous" cases to which I have referred—such cases as will not approximate or conform to our well known standard types, as described in text-books. But any medical treatise or classification to be complete must provide for such exceptional, anomalous, or nondescript cases, and while fully recognising the power and influence of some specific diseases to propagate their specific progeny by direct transmission as heretofore, we must also, I think, recognise the power and influence of evolution as competent to generate or call into being some diseases hitherto unrecognised otherwise than as nondescript or anomalous cases.

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* Sir Andrew Clark, Bart., M.D., Lumleian Lect.—*Lancet*, 4th April, 1885.

The doctrine of "specificity" in disease has hitherto ruled all pathology and therapeutics. It has been the key of medical science (Trousseau). But just as Darwin's theory of evolution goes beyond specificity, so in its application to the evolution of diseases it must to a certain extent swallow up the lesser and older theory, as it rules and directs our notions regarding the evolution and development of some of them. *

"The intellectual movement to which the impulse was given twenty-six years ago by the true English naturalist, Charles Darwin, in his celebrated work on *The Origin of Species*, has, within this short period, assumed dimensions which cannot but excite the most universal interest. As part of a universal theory of development, Darwin's scientific theory, as set forth in that great work, embraces in its vast range the whole domain of human knowledge; and this immense extension of our intellectual horizon must be looked upon as by far the most important and rich in results among all the numerous and grand advances which natural science has made in our day. † Darwin's account of *The Origin of Species* "has revolutionised our modes of thought in every department of mental activity." ‡ "It is, indeed, a question whether there is a single modern work of any worth, on any subject whatever, on mind or matter, that is not the better for what Charles Darwin has done." § "His doctrine of evolution binds all existing things on earth into one, so that all things are embraced in one great design, beginning with the very creation." ||

In scientific investigation it is permitted to invent any hypothesis; and if it explains various large and independent classes of facts, it rises to the rank of a well grounded theory. Such an hypothesis as that which Charles Darwin has expressed by the term "natural selection," or as Herbert

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* Collins, *l. c.*

† *The History of Creation.* By Ernst Haeckel. 1876. Vol. I, p. 2.

‡ Dr. Lauder Brunton.

§ W. K. Parker, F.R.S., *On Mammalian Descent.* 1885. P. 216.

|| *Bampton Lectures*, 1884, Dr. Temple. Page 122.

Spencer has expressed by the phrase "survival of the fittest," has been put to the test of trying whether it will explain the geological succession of organic beings, their distribution in past and present times, and their mutual affinities and homologies. Finding that it does explain these things and stand this test, it has now assumed the rank of a theory—"The Theory of Evolution."

But although, with regard to pathology, the use of the terms "natural selection" or "survival of the fittest" would be altogether inappropriate as hypothetical terms to be used in explanation of the continuous evolution of diseases, yet the conditions of life are such that we may fairly adopt the hypothetical expression, "elective affinity" in the constitution of the race or the individual towards certain causal and concurrent factors of disease rather than to others, as determining whether or not any new disease might thereby be established on the one hand, or might be within the power of man to exterminate or stamp out altogether on the other.* And if this principle, shortly embraced in the term "elective affinity" in the constitution of the individual or the race towards certain causal and concurrent factors of disease rather than to others, will explain large bodies of facts in pathology regarding the origin of diseases which hitherto have not received any satisfactory explanation, then the theory of evolution which it embodies may perhaps be received as explaining to some extent at least the "coming into being" of some diseases.

It so happens that, during the past ten years especially, a vast array of cases and of facts in pathology and clinical medicine have been brought together by many experienced and observant men, which warrants a reconsideration, *at any rate,* of those concurrent factors which result not only in the evolution of some constitutional or inborn diseases, but also in the origin, development, and propagation of some of the zymotic diseases, viewed from a new standpoint, which shall be suggestive of a modification of our notions hitherto held regarding specificity in diseases to the extent that I have just indicated. Such variations in disease should be studied as Darwin studied the varieties of species; and "in the pursuit of new knowledge, his method ought to be a model to all." Sir James Paget tells us, from personal knowledge of the man, that Darwin would have studied these things "not by deduction as from a law exactly formulated, and from which he could trace the course of every change, but by a most careful collection of facts, and by a study as complete for every case as if no law of evolution had ever been discovered."*

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* Compare Charles Darwin, *Animals and Plants under Domestication.* Vol. I, p. 6.

The present Bishop of London, Dr. Temple, in his eloquent Bampton Lectures for 1884, has fairly and well described Darwin's theory "as resting on two main pillars, namely—(1.) The transmission of characters from progenitor to progeny. (2.) The introduction of minute variations in the progeny with each successive generation."

The former of these may be said to be well established; and we recognise it as a law of life that all plants and animals propagate their own kind. But the latter of these main postulates has, as yet, been hardly examined at all. Each new generation shows special slight variations. But what causes these variations? and what determines what they shall be? In Darwin's investigations these questions are but slightly touched upon, beyond the statement of the fact that "the varied conditions of life induce variability." The variations are treated as if they were quite indefinite in number and in nature. "As accomplished facts Darwin concerns himself only with the effects of these variations *after they have appeared;* and while some of these variations are advantageous, some are hurtful to life. Hence we are bound to look not only to the effects of variation, but to their causes."

The same method and argument hold good regarding diseases. We must look to the causes of *variations.* They cannot be due to something *only* in the progenitors, or otherwise the variations would be all alike, which they are not. They must therefore be due to external circumstances, the antecedents and surroundings of the individual. The very slightest variations may be the outcome of the action of the surroundings upon the habit of the animal body—by the food, by the temperature, by the climate, by the soil, by the numerous and varied accidents of life in the progenitors; so that these and other such like factors being taken into account must gravely modify the conclusions which we draw concerning the ancestry of any species now existing alike in animals, in plants, and in their diseases. If we try to trace things backwards, Darwin's investigations have made it exceedingly probable that the vast variety of plants, of animals, and of diseases have sprung from a much smaller number of original ancestral forms than now exist; and the unity of plan which prevails and pervades any great class of animals, or plants, or diseases seems to point to unity of ancestry, alike in them and in their diseases.

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* Bradshaw Lecture. *Lancet*, 16th December, 1882.

LECTURE ON APHONIA, OR LOSS OF VOICE CONSEQUENT ON LARYNGEAL DISEASE, WITH ILLUSTRATIVE CASES (*Continued*).

By DAVID NEWMAN, M.D.,

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(*Delivered at the Glasgow Royal Infirmary during the Summer Session of 1885.*)

Gentlemen, in my lecture on Wednesday last I began by indicating to you the various diseases which may lead to loss of speech. I showed you that it may be due to aphasia, amnesia, alalia, loss of ideation, or aphonia, and for the sake of convenience I classified the causes of inability to speak from lesions of the laryngeal apparatus under the following heads:—

1st. Loss of speech, consequent upon nervous lesions, leading to paralysis either of a group of, or of all, the muscles concerned in the production of vocal sounds.

2nd. Aphonia arising from some mechanical interference with the action of the arytenoid cartilages, or of the movements of the vocal cords.

3rd. Aphonia consequent upon interference with the force of the current of expired air.

4th. Aphonia caused by the action of certain toxic agents.

5th. Aphonia without any recognisable nervous lesion, or any mechanical cause to which the arrested movements can be attributed.

The whole of our time at last lecture was occupied in considering the diseased conditions which should be included under the first heading. To-day I will ask your attention, in the first place, to cases in which the power of phonation is impaired or lost from some mechanical interference with the action of the arytenoid cartilages, or of the movements of the cords. The diseased conditions which may be included under this head are numerous, and vary greatly in their nature. Obstruction to the normal act of phonation may come on gradually as the consequence of inflammation of long standing, as exemplified in aphonia clericorum; or it may arise suddenly from the exudation of serum into the tissues forming the vestibule of the larynx.

Again, the approximation of the cords may be impeded by the presence of specific inflammatory formations, and by the development of a tumour; on the other hand, as I will illustrate to you by a specimen I have with me, cases are met with in which the power to produce voice is prevented by the presence of foreign bodies introduced from without; or, as is often the case, the aphonia may be due to specific ulceration, to the contraction of cicatrices, or to anchylosis of the crico-arytenoid articulation.

You will therefore perceive, gentlemen, that in order to discuss the etiology of the diseases which we are now considering, it will be necessary to adopt some classification, and that which I propose to give is the following:—Aphonia from mechanical interference with the action of the arytenoid cartilages, or with the movements of the cords, may arise—1st, from œdema of the vestibule of the larynx preceding or following albuminuria, or from simple œdematous laryngitis; 2nd, from the presence of foreign bodies introduced from without, tumours, inflammatory *deposits* or *infiltration* with specific formations; 3rd, from simple or specific *ulceration* (syphilis and tubercular disease); 4th, from anchylosis of the crico-arytenoid articulation; 5th, from the contraction of cicatrices.

Œdema of the larynx is sometimes one of the earliest symptoms of Bright's disease, although it is not common to find the serum exuded into the areolar tissue of the larynx before it infiltrates other parts, such as the eyelids, face, &c. Exudation of serum into some part of the vocal apparatus is exceedingly common as a complication, both in tubercular and syphilitic laryngitis; but it is not to this form of œdema that I desire at present to direct your attention, but rather to the acute variety.

Some years ago I was suddenly called to see a patient who was almost suffocated during an acute but transitory attack of œdematous laryngitis. He had been suffering for a few days from symptoms of urticaria, when suddenly the skin affection disappeared, and he experienced the sensation of a foreign body in the throat. At first the difficulty in breathing was slight, but within a few minutes it became so severe that I was sent for, and by the time I arrived the patient was almost asphyxiated, and quite cyanotic. I was just about to perform tracheotomy when the symptoms of obstruction to the passage of air through the larynx gradually subsided, and within ten minutes or a quarter of an hour the patient's breathing was fully restored; but he still suffered from loss of speech. Immediately after the acute symptoms were relieved, a laryngoscopic examination was made, when the mucous membrane covering the upper part of the larynx was seen to be highly œdematous. By next day, however, he recovered his voice so that he could speak quite naturally, and without any unusual effort.

Independent of other lesions, acute œdema of the larynx is a very rare disease, but although, as a primary affection, it is not common, yet it occurs occasionally as a secondary phenomenon during the course of the acute zymotic diseases, as, for example, in small-pox, in enteric and scarlet fevers, or in tubercular and syphilitic inflammation. I have had the painful experience of seeing this disease prove rapidly fatal in a case which I examined *post-mortem* for my friend Dr. Eadie. The little child was in its crib at six o'clock A.M., and was then apparently in good health. The nurse fell asleep, and at eight o'clock went to rouse the child, when she found it dead. At the *post-mortem* examination, which was made about twenty-four hours after death, there was evidence of acute œdema of the larynx. The mucous membrane was injected, and there was a collection of pure serous fluid in the sub-mucous connective tissue of the ary-epiglottic folds, in the ventricular bands and at the base of the epiglottis; but the vocal cords were not swollen to any extent. On section, very little fluid escaped, and in some parts the membrane presented a peculiar sodden appearance. The only other organs which showed anything abnormal were the lungs, the pleural surfaces of which were occupied by numerous punctiform hæmorrhages.

In children, as well as in adults, this disease is very fatal, whether it be due to pre-existing disease or not. According to Sanné the greatest mortality occurs between the ages of ten and thirty years; and of these cases nearly eighty-five per cent prove fatal.

Limited œdema affecting the inter-arytenoid fold not uncommonly gives rise to aphonia by preventing the approximation of the vocal cords, but it is not frequently met with as a primary affection, is usually chronic in its nature, and seldom gives rise to dangerous symptoms.

Dismissing thus shortly aphonia arising from œdema, I will now pass to the consideration of the second class of lesions which, by their presence, may mechanically interfere with the movements of the vocal ligaments—namely, tumours, inflammatory deposits, the presence of specific new formations, or of foreign bodies introduced from without. At last lecture, I showed you a patient who had a syphilitic new formation on the right side of the larynx, and in whom aphonia was caused partly by the presence of the growth, and partly by paralysis of the abductors on the left side. This case, as I demonstrated to you, was at the time you saw her, completely cured by constitutional treatment after tracheotomy had been performed, to relieve the symptoms which required immediate attention. When you saw this patient at my last lecture, I removed the tracheal tube, and you see now that the wound is almost completely healed. This case illustrates very well one of the causes of aphonia in syphilitic disease. At the close of this lecture I will show you another patient who is also suffering from syphilitic disease, but in his case the aphonia is due to a complete destruction of vocal cords, and therefore I have no hope of restoring his voice.

These cases are interesting when taken along with this old woman, who was admitted to the ward for the purpose of having a tumour removed from the larynx. She at present suffers from complete aphonia without any interference with respiration. She states that two years ago she first noticed "something the matter with her throat," but did not complain either of pain during phonation, or on deglutition, until about four months ago. At this time her voice became very hoarse, and she was troubled with a frequent croupy cough, but did not complain of dyspnœa. Since then the interference with phonation has gradually become more marked, and now she is unable to speak except in a whisper. On laryngoscopic examination a papilloma about the size of a large horse bean is seen to occupy the right ventricle of Morgagni, and extends about $\frac{1}{8}$th of an inch to the right of the middle line. Its surface is very irregular, and presents very much the appearance of a cauliflower excrescence, and its base is attached to the upper surface of the vocal ligament. During attempted phonation a portion of the tumour usually falls between the cords, and so prevents their approximation. When first seen, it was almost impossible to make a satisfactory examination of the larynx on account of its irritable condition, but now the patient is able to submit to a prolonged examination, and can even allow the introduction of instruments within the larynx without inconvenience. The tumour presents most of the characters of a rapidly growing papilloma, but on account of the indurated condition of the false cords the question of the true nature of the tumour must be deferred till it has been removed and examined microscopically. I will demonstrate to you the laryngoscopic appearance after the lecture; and when the tumour has been removed, I will show you sections of it under the microscope.*

In this case you will observe that the only condition which interferes with phonation is a portion of the tumour coming between the cords. The mass of the tumour is situated above the true cords, and therefore can be easily removed by the endo-laryngeal method. The only difficulty is that on account of a portion of the tumour being situated in the ventricle, the part protruding into the glottis may be cut off by the forceps, while the base may be left, and form a nucleus from which a fresh growth may spring.

I cannot now enter into the pathology of tumours, as it is altogether apart from the purpose of my present lecture, but I may say, considering all the circumstances of the case, that even though I may completely remove the tumour from this woman's larynx, and restore her voice, it is not unlikely that the tumour may re-form, and in place of having to deal with a papilloma as at present, the entire nature of the growth may change, and an epithelioma may call for more radical treatment than that which I intend to adopt now.

But I must pass to the discussion of another form of obstruction to the movements of the cords—namely, the introduction into and impaction of foreign bodies in the larynx; and I will illustrate this by a case which I brought under the notice of the Glasgow Pathological and Clinical Society in January last, and from which this specimen was removed.

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* About a week after the above lecture was delivered, Dr. Newman removed the entire tumour *per vias naturales*, by means of Morell Mackenzie's antero-posterior cutting forceps. The tumour, when removed, was about the size of a horse bean, and on microscopic examination it was found to present the following appearances:—The mass of the tumour was made up of hypertrophied papillæ composed of epithelium arranged upon a fibrous basis. The basis substance was branched, so that on transverse section small portions of fibrous tissue appeared to be embedded in the epithelium. Lying immediately on the connective tissue there was a layer of columnar or germinal epithelium. Above this there was a thicker layer of polygonal shaped cells, and still more superficially large epithelial cells were deposited, and some of these contained vacuoles which give the layer a peculiar translucent appearance. The germinal layer was not clearly defined from the underlying connective tissue basis; so indistinct, indeed, was the separation at some parts, that the question might be raised whether or not there was a tendency of the epithelium to invade the deeper structures, and of the tumour to develop from a papilloma into an epithelioma. Within twenty-four hours after the tumour was removed, the patient was able to speak in a hoarse voice, but it has now almost completely regained its normal clearness. There was very little bleeding during the operation, which was performed without chloroform, but with the aid of cocaine.

The patient whom I relieved of this piece of bone was taking some fish soup, when he was suddenly seized with a paroxysm of coughing, accompanied by great dyspnœa, and at the same time he complained of severe pain in the larynx. I was sent for, and on arriving, found the patient to be suffering from all the symptoms of a foreign body in the larynx, and his voice was entirely lost. The irritation produced by the piece of bone was so great that a laryngoscopic examination was, at first, quite impracticable. The larynx and fauces were brushed with a 20 per cent solution of cocaine, and this was repeated at intervals of about half an hour. After six applications, the larynx was so anæsthetised that an examination could easily be made, and instruments could be introduced within the glottis. The appearance of the left side of the larynx was as follows:—the mucous membrane was swollen and hyperæmic, and just below the false cord a clear glistening body was seen, which presented the appearance of a true vocal cord of unusual brilliancy and breadth. During a movement of the false cords, this glistening body became displaced, and its true character was revealed. It proved to be an irregularly shaped lamella of fish bone. The margin lying over the true cord was broad and regular, while the edge lying against the false cord was sharp and spiked. The bone was about half an inch long and three-eighths of an inch broad at its widest part. The irregular margin was found to be buried in the mucous membrane, crossing the lower aspect of the false cord, so that the spiculum was firmly attached and retained in the position just described. Schrœtter's laryngeal forceps were introduced, and with some difficulty the bone was removed by the mouth without making any external incision. After the removal of the foreign body, the patient was directed to use steam inhalations containing the compound tincture of benzoin, and in a few days recovery was complete. The patient now speaks with a natural voice, and there is nothing indicative of any harm having been done either by the operation or the piece of bone.

In connection with the operation, great advantage was obtained by the employment of cocaine. Without its use, the removal of the bone by the operation just described would have been quite impossible, and thyrotomy, with all its evil consequences, would have been necessary. The solution of cocaine was applied by means of an ordinary laryngeal brush, but the method I now employ is to wash out the fauces and upper portion of the larynx with a weak alkaline solution, and afterwards with water, so as to remove, as far as possible, mucus from the parts. When this has been done, a fine spray of a 25 per cent solution of cocaine is directed against the fauces and interior of the larynx for a few seconds, and the patient is directed to avoid swallowing and remain at rest as far as possible for quarter of an hour, when the spray is again applied and repeated at short intervals as often as may be found necessary. By this method not only is a smaller quantity of cocaine used, but the necessary irritation produced by the brush is avoided. The patient suffered from considerable prostration immediately after the operation; but whether this was due to the physiological action of the drug, ten grains of which had been used, or to the accident and manipulative interference, it is difficult to say, but it was probably due to both causes.

I have now illustrated to you, gentlemen, how a foreign body introduced from without, or the development of a tumour within the larynx may cause impairment or loss of speech, but these are by no means the most common forms of mechanical interference with the movements of the cords. Inflammation of the larynx is, of all others, the most frequent cause of the variety of aphonia which we are now discussing. Thus we may have loss of speech either permanent or transitory, as a consequence of inflammatory induration of the cords, or of the surrounding structures. I do not at present refer to cases in which interference with phonation takes the form of destruction or necrosis of tissue, but simply include those cases of laryngitis where a general inflammatory infiltration of the sub-mucous structures leads to interference with the mobility of the larynx. For example, it is of very frequent occurrence to find aphonia in cases of follicular laryngitis, and in all chronic inflammations of the larynx there is a tendency to hypertrophy of the inter-arytenoid fold, which prevents the approximation of the arytenoid cartilages, or of the ventricular bands. On the other hand, the ventricles of Morgagni may become obliterated, and the whole mucous membrane of the larynx so infiltrated with inflammatory products that the movements of the cords are greatly impeded. In many cases, however, in addition to the changes which I have just mentioned, there may be paresis of the muscles, particularly of the abductors. In aphonia clericorum the loss or impairment of speech is due to such lesions.

In cases of specific inflammation affecting the organs of voice, aphonia may arise from contraction of cicatrices. You will see from this patient, who suffered from specific inflammation with great destruction of the soft palate and nose, ulceration of the larynx and trachea, that the cords have become fixed to the sides of the larynx by the development and contraction of inflammatory products. Since the commencement of the disease, two years ago, the vocal ligaments have become so bound down that the glottis remains an open tube, even during attempted phonation, so that there is now nothing corresponding to vocal sounds produced; and, when speaking in a whisper, it is with the greatest difficulty that the patient can make himself understood.

In this patient the cords have become attached to the laryngeal wall; in other cases, however, instead of being held in the abducted position, the cords may be dragged across the middle line, and permanently fixed there.

Thickening of the inter-arytenoid fold is the most common cause of aphonia in chronic laryngitis, whether simple or tubercular in its origin; and in the latter condition it is frequently associated with thickening of the ary-epiglottic folds. In the case of this old woman whom I now show you, you have an example of laryngeal phthisis with pyriform swelling of the ary-epiglottic folds, ulceration of the cords and of the inter-arytenoid fold.

The tumid pyriform swelling is an important and characteristic feature in phthisical laryngitis, and is due to some extent to the deposit of tubercular material as well as to general inflammatory induration and œdema. In this case laryngeal examination is not easy, on account of the weakness of the patient and the irritable condition of the pharynx; but by employing a local anæsthetic (cocaine), I have succeeded in making out the following appearances. The ary-epiglottic folds, particularly the right one, are thickened, and appear as pyriform swellings. These are pale in colour, and from their position prevent approximation of the cords. The epiglottis is slightly thickened, but otherwise practically normal. The right vocal cord is occupied at its posterior part by a small ulcer, and its movements are greatly impeded by the general infiltration of the tissues, so that the poor woman can only speak in a low whisper.

I have not brought this case before you for the purpose of demonstrating the appearances observed in laryngeal phthisis, but rather in order to show you how the lesions in that disease may prevent the free movements of the cords.

If time permits I shall, at a future lecture, show you a few specimens of tubercular laryngitis, and describe to you the changes to be observed during the various stages of the disease, but at the present time I shall not detain you by any further remarks on this subject, but will now pass on to say a few words respecting a hitherto not very well understood condition which may cause impairment of the movements of the arytenoid cartilages—I refer to rigidity of the crico-arytenoid articulation. Dr. Semon, in the *Medical Times and Gazette*, vol. ii, 1880, called attention to two conditions which may cause rigidity of the crico-arytenoid articulation—namely, one in which the stiffness is due to intra-capsular disease or true anchylosis of the joint; and another in which the function of the joint is impaired by the accumulation of inflammatory products around it, while the interior of the articulation remains healthy.

These two conditions are often combined, and, indeed, true anchylosis is not infrequently the direct consequence of pre-existing extra-capsular disease.

The diagnosis of this during life is by no means easy. Dr. Semon writes, "The explanation that I would offer for a good many of these cases is simply—*disease of the crico-arytænoid articulation.*

"It is a curious fact that, in spite of observations proving the existence of affections of this joint, the importance of this as a cause of obscure cases of motor impairments seems never to have been recognised by previous observers. In fact, the simple physiological, anatomical, and pathological relations of this articulation ought to have shown the by no means rare occurrence of such processes. This little joint is, from its physiological dignity and in spite of its small size, one of the most important in the whole body, as it presides over the very important functions of respiration and phonation. It is situated in an extremely exposed position, easily accessible to injuries which may befall not only the larynx, but also the œsophagus; at the same time its configuration is a very delicate one; it never rests during waking and sleep, during health or disease. The parts just in its immediate vicinity are, according to all experiences, the predilected seat of almost all the inflammatory and destructive diseases of the larynx; in short, everything tends to show, *à priori*, the likeliness of its taking part in the pathological processes involving its constituent parts or their neighbourhood."

"I, for one, am convinced, and hope to prove the probability to the readers of this paper, that the occurrence of affections of the crico-arytænoid joints is much more frequent than would appear from the very few cases recorded. It would be certainly a decided advantage if we could substitute for the indefinite term 'rheumatic paralysis' the more positively anatomical diagnosis, 'mechanical impairment of mobility.'

"But, even supposing that the result of *post-mortem* examinations proved the correctness of the present belief in the rarity of this joint-affection, still I consider the intrinsic importance of the joint sufficient to justify the following attempt at a more elaborate consideration of its pathology than has been hitherto granted to it. Even minor degrees of mechanical impairment of its mobility might produce serious troubles in phonation, whilst the complete bilateral true or spurious anchylosis of the arytænoid cartilages in that position which they occupy in phonation might directly cause the death of the patient by the complete occlusion of the glottis which results from the juxtaposition of these cartilages.

"Sidlo's case, reported by Von Ziemssen in his *Cyclopædia*, proves that this is not a mere theoretical danger, but that such an instance has occurred in reality; of course, it may occur again any day. It is hardly necessary to say that between such an issue and between the slight symptoms due to minor degrees of the bilateral form or to unilateral anchylosis or luxation there is a large intermediate scale of possible phenomena, according to the individuality of each case.

"So much, however, is clear, that it is not only interesting but even necessary, to know under what conditions a true or spurious anchylosis or luxation can be produced; what are their pathology, symptoms, diagnosis, prognosis, and treatment; and especially whether there is any possibility of distinguishing this form of impairment of the action of the vocal cords from that produced by nervous or muscular disorders. This question will be, of course, one of the greatest importance, not only for the diagnosis, prognosis, and treatment of the *laryngeal* affection, but also for the correct diagnosis of many *constitutional* diseases, in which the erroneous supposition of a nervous disorder of the larynx may lead to a fatal diagnostical mistake."

"*Pathology.*—With regard to the extremely small number of *post-mortem* records, and with special regard to the fact that I myself have never had the opportunity of investigating a case after death, I do not think it right to indulge in extensive theoretical speculations. Moreover, they are the less necessary, because the histological configuration of the crico-arytænoid articulation is in no way different from that of other joints, and we may thus fairly presume that the general pathology of anchylosis will hold good for changes in this joint as well. It will be understood, of course, that the changes may vary in degree from a simple roughness and unevenness of the articular surfaces to their complete coalescence.

In other cases a limited amount of movement may be preserved. Again, the pathological changes will differ according to the nature of the primary disease: thus, in suppurative perichondritis, parts of the joint may be completely destroyed through necrosis and subsequent elimination of sequestra, while the cavity thus made is filled up by newly formed connective tissue, and while the remaining portions of the cartilage undergo a premature ossification; on the other hand, in adhesive, and especially in syphilitic, perichondritis the changes present may appear in the form of simple, more or less developed, thickening of the perichondrium, partial ossification of the cartilage, and new formation of connective tissue; again, in gout there will be a more or less extensive deposit of urates within the articular capsule, &c. As to spurious anchylosis, the changes will also differ according to the nature of the primary disease, and in most cases will consist of cicatricial contraction of the mucous membrane and of the muscles. As to the changes in cases of luxation, they may be, as Fränkel's beautiful case shows, not followed by any perceptible change in the configuration of the joint; or else they may be attended by tumefaction, as shown by Stoerk's two cases; nor must the possibility of a luxation preceding or leading to anchylosis be overlooked.

"Such are the changes which may fairly be expected in or around the joint itself; but besides those the nature of most of the diseases leading to anchylosis and luxation is such that other parts of the larynx may be affected as well."

"Excessive tumefaction, even if only unilateral, is in itself a cause of more or less severe dyspnœa. In bilateral cases of anchylosis, the cords being in the phonatory position, extreme *dyspnœa* will be present, possibly with full preservation of the natural voice, possibly with falsetto voice if combined with luxation of the arytænoid cartilages and increased tension of both the vocal cords. Where cicatricial contraction of the mucous membrane on the inner surface of the posterior laryngeal wall has preceded the anchylosis, the arytænoid cartilages may have been bound *internally*, and the cords remaining lax and no tension being possible, complete aphonia will be present, though the vocal cords, of course, lie close to each other in the middle line; this again will give rise to dyspnœa of an extreme kind. The greater the opening of the glottis, the less will be the dyspnœa; the weaker, however, will be the voice, in some cases amounting to complete aphonia. In unilateral cases there may be no perceptible subjective change of the voice if the anchylosed joint is fixed in the phonatory position. Occasionally there may be some dyspnœa in such cases after exertion. In other cases, in which the corresponding vocal cord is bound to the side of the larynx, there will be weakness of the voice, and even aphonia, if the healthy vocal cord cannot effect sufficient compensation by crossing the median line and joining its immovable fellow. In cases of anchylosis in the phonatory position, with luxation and increased tension of the corresponding cord, there will be 'diplophony.' Hoarseness is by no means necessarily present, but the diseases leading to anchylosis will, as a rule, affect in a greater or lesser degree the vocal cords as well, and thus hoarseness will in the majority of cases be present."

"The diseases with which anchylosis and luxation of the arytænoid cartilages may be most easily confounded are, of course, above all others nervous, and myopathic affections of the larynx. *There is no doubt that nervous paralysis is the most frequent cause of motor impairments in the larynx, and I wish to say distinctly that always in the first place, unless there are such decisive symptoms as tumefaction and luxation, we must think of a nervous paralysis if we observe laryngoscopically a motor impairment.* If, however, a careful consideration of the case and a close physical examination of the patient fail to give us any clue as to the existence of any such nervous disorder, we shall, *especially if there is a history of one of those diseases enumerated above preceding the laryngeal trouble*, have to think of the possibility of an anchylosis of the crico-arytænoid articulation. Very unusual position of the immobile arytænoid cartilage, and corresponding vocal cord; *absolute* immobility; signs of previous ulcerative diseases; abnormal distortion of the mucous folds; and, above all, *tumefaction* at the basis of the immovable arytænoid cartilage, will of course much foster such an idea. The possibility of a combination of nervous and mechanical impairment must not be overlooked; and in such a case the question is, which has been the primary one? Typhoid fever, syphilis, or diphtheria, for instance, may lead to nervous paralysis or to anchylosis as a result of ulceration; and, on the other hand, the anchylosis may supervene on the paralysis, &c.

"As to the possible errors in the differential diagnosis between anchylosis and certain single forms of laryngeal paralysis, the following more important points are to be remembered:—An anchylosis in the position of deep inspiration might look exactly like a paralysis of the crico-arytænoideus lateralis muscle; an anchylosis in the cadaveric position like a paralysis of the entire recurrent nerve; an anchylosis in the phonatory position like a paralysis of the posterior crico-arytænoid muscle. Especially I wish to draw again attention to the most important of all—namely, the differential diagnosis of bilateral paralysis of the posterior crico-arytænoid muscles from the bilateral anchylosis in the phonatory position. The laryngoscopic examination may reveal exactly the same state of things; the subjective symptoms are the same; the same diseases, especially syphilis, may lead to both; yet they are essentially different from each other in pathology, in importance, and in treatment. The presence of tumefaction about the bases of the arytænoid cartilages, evidence of other cicatricial contractions in other parts of the larynx, and the results of different methods of treatment, may in such cases establish the diagnosis; in other instances, however, the true nature of the case will only appear *post-mortem*."

The danger to life in such cases may be said to depend upon the position in which the joint is anchylosed and the amount of swelling and induration of the tissues. In all cases the prognosis should be guarded, and when there is much obstruction to respiration, tracheotomy may be called for. In the *post-mortem* room of this hospital I have many opportunities of examining the larynx, and I may state that, as far as my experience goes, anchylosis of the crico-arytænoid articulation is by no means common. Dr. Semon has, however, performed a very useful service to the profession by directing the attention of medical men to this class of diseases by his valuable contributions on the subject.

(To be continued.)

CURRENT TOPICS.

University of Glasgow—Final Examination for the Degrees of M.B. and C.M.—During the last week of July the examinations terminated, and the lists containing the names of the successful candidates were published. Out of 115 candidates who presented themselves, 96 were successful in satisfying the examiners—that is to say, there has been about 16 per cent of rejections. No gentleman has this year succeeded in obtaining his M.B. and C.M. with honours, but the following were named as entitled to High Commendation and Commendation—viz., *High Commendation*—Messrs. A. Wilson, A. S. Alexander, and J. R. R. M'Crindle. *Commendation*—Messrs. S. P. Alexander, W. Huntly, M.A., W. L. Gray, C. Mactaggart, B. S. Cowen, J. Dunlop, M.A., Joseph Scanlan, J. W. Cameron, and J. S. Wright. Nine gentlemen were successful in obtaining the degree of M.D., the thesis of Mr. J. Yule Mackay, M.B., on "The Origin and Development of the Larger Arteries" being highly commended, and that of Mr. W. Macvie, M.B., on "Atrophic Infantile Paralysis" being commended. The Graduation ceremony took place in the Bute Hall on Thursday, the 30th ult., at 12 o'clock, after which Prof. Leishman delivered the usual valedictory address to the graduates.

SEMOLINA.—We have received a sample of an article named "Semolina," from Marshall Brothers, Ibrox Flour Mills, Glasgow. It is said to be specially prepared from fine wheat, and is intended to take the place of oatmeal, sago, tapioca, and such foods. It is said to contain about 70 per cent of carbohydrates, and 15 per cent of albuminous matters. We have examined it carefully, and believe it to be all that its introducers represent it to be—a wholesome, palatable, and cheap food. We can certify that in the form of pudding it is pleasant to the taste and easily digested.

On Saturday afternoon a new iron screw steam vessel, built for the Port Sanitary Committee by Messrs. Edwards & Symes, was successfully launched at their works, North Greenwich. The boat, which is 59 feet long and 11 feet beam, is arranged to accommodate the Medical Officer and Inspectors forward, and has a large cabin aft for the conveyance of sick persons to hospital.

She was built from the designs of Dr. Collingridge, the Medical Officer of the Port, and Mr. A. D. Lewis, Naval Architect.

REVIEWS.

Selected Monographs: Albuminuria in Health and Disease. By Dr. H. Senator. *The Nature and Pathology of Typhus and Typhoid Fever.* By the late Dr. A. P. Stewart. *Movable Kidney in Women.* By Dr. Leopold Landau, New Sydenham Society. London. 1884.

The essays contained in this volume differ as widely in their relation to the history of medical science as they do in their subject matter. As illustrations of the present, past, and future of investigation and discovery, they deserve the prominence which has been assigned to them; and equally as groundwork, history, or suggestion, they are instructive and important. Upon all the subjects to which these monographs refer, the Glasgow Medical School has spoken with authoritative voice. The recent discussion on albuminuria was a specially valuable contribution towards the literature on that subject. Our Glasgow Hospitals cradled the earlier suggestions concerning the differentiation of typhus and typhoid fever, and nurtured our present knowledge of these diseases; while still more recently a distinguished member of a local Association largely supplemented our still incomplete knowledge of floating kidney.

We have referred to Dr. Senator's work on *Albuminuria in Health and Disease* as representative of the present of medical investigation. We claim such a position for it because it is an endeavour to narrow the indefinite boundaries which delimit the adjoining provinces of physiology and pathology. An attempt so far successful, that useful deductions are either logically attained or clearly indicated. A short chapter which deals with forms of morbid albuminuria closes the first monograph, and applies to that subject the deductions made from the study of not unphysiological conditions. A further comparison with, and criticism of the various theories of urinary secretion, elucidates both subjects in no small degree, and prepares us for the consideration of the hygienic or physiological treatment of albuminuria which follows.

It is persistently asserted by Dr. George Johnson that the slightest albuminuria is pathological, or will eventually become so. Others, and Dr. Senator is one of them, assert that albumen can be found even in normal urine, and between these extremes, there are all gradations of opinions. Of course we exclude from the question the albuminuria which occurs in the course of some febrile diseases, but beyond this, there are many moot questions. In connection with this subject, it is interesting to note that even in that most purely physiological albuminuria from the ingestion of egg albumen —more albumen is secreted by the kidney than is derived from the egg—in other words, that an artificially produced albuminuria excites an albuminuria over and above itself. It is also indicated that in peptonuria a similar albuminuria is often produced, and that probably these substances are direct irritants of the kidney. Now, if irritation of the kidney by alcohol and other poisons will produce first, a transient, and finally, a permanent albuminuria, too little importance must not be attached to a similar irritation by albumen. Whether it be considered that Senator has proved the existence of physiological albuminuria or not, it cannot for one moment be denied that he has furnished us with a vast amount of valuable information. Starting with an enquiry into the possible sources of albumen in the urine, and the various forms in which it is excreted, he proceeds to the demonstration of albumen as a constituent of normal urine. The causes of albuminuria follow in four excellent chapters, dealing severally with the effect of alterations of blood pressure, the degeneration of renal epithelium, the conditions of the blood, and pathological states of the kidney.

In the course of the monograph, the theory of urinary secretion is frequently brought under comment, and none of the current explanations is accepted as a whole. The author believes that most of the urinary water with salts and a trace of albumen is obtained by a process of filtration from the glomeruli, and that true secretion of the potential factors of the urine and the remainder of the water takes place in the tubes. By assigning to the glomeruli a mechanical, and to the tubuli a vital function, he renders more easy the explanation of albuminuria consistent with health. It is hardly possible to believe that a direct filtrate from the blood can be perfectly free from albumen; but it is not incredible that a feebly albuminous fluid may be so far diluted as not to react to ordinary tests. There are some very useful and clear remarks concerning these same tests for albumen in one of the earlier chapters, and this is doubtless a subject on which we have more to learn. We find also a pregnant suggestion concerning the origin of albumen in the renal epithelium cells; not at all of necessity by solution of their fixed albumen, but by the disintegration of their protoplasm during destructive processes. A nephrogenous, rather than a hæmatogenous albuminuria. Again, we find Dr. Newman mentioned in honourable company, in association with the effect which certain salts, and even an excess of urea, have in favouring the filtration of albumen. A most important fact in estimating the gravity of an albuminuria, when we remember that such excess always exists after a hearty meal.

Still undefined are the molecular changes which take place in the albumens under varying conditions such as temperature.

We know at least that the injection of blood serum from an animal of different species will produce albuminuria, though we cannot distinguish the serums by chemical means. By such investigations we are enabled to follow the gradations of peptonuria, propeptonuria, and albuminuria into one another, and obtain clearer ideas at least of a preliminary stage in which symptoms, formerly regarded as very grave, may still lie within the control of careful dietetic and hygienic measures. The day has gone past in which we regarded diseases beyond our control when they were not amenable to medicinal agents. It is not impossible, indeed, that our greatest triumphs will be gained with such diseases as we treat upon purely physiological principles. Perverted physiological action persisting and setting up structural change is neither a rare nor a trivial matter, but it is one which is possibly comprehensible and, if comprehensible, frequently capable of amendment. In the instance under discussion, the perversion of function is frequently due to the existence of poisons introduced from without or formed within the body by more or less well known means. Further, the action of these agents is aided or hindered by surroundings, and by the balance or counterbalance of other bodily functions. It remains to indicate how this counterbalance may be made; how, as Sir Andrew Clark puts it, the fire may be made to burn usefully if not brightly with a smoky chimney. To follow out the metaphor we must first seek to know how great a fire need be kept up to maintain life. In other words, what amount of albumen is lost by the diseased kidney, and how much, under ordinary circumstances, is required to sustain the vital functions. Senator shows us that we may dismiss the former factor, for even in grave albuminuria not more than 8 to 10 grammes of albumen is lost per day, and this loss would be replaced by half a pound of meat per week. As regards diet, Dr. Johnson and others rely upon milk solely, but there are difficulties with regard to it. It is not easy to persuade the patient to adhere to it; and, if he does, there is a deficit both of albumen and hydrocarbons, which is not compensated for by the excess of fat. For the maintenance of health, under the easiest conditions, a mere sustentation diet, we require daily 85 grammes of albumen, 30 of fat, and 300 of hydrocarbons, while a full milk diet, two litres, gives us only 38 grammes albumen, 74 fat, and 100 hydrocarbons. There is no real objection to the addition of farinaceous stuff such as bread, gruel, &c., which supplies what is wanting. Neither is it hurtful to vary the dietary with white meats and green vegetables, or permit the moderate use of mineral waters, and even a little claret; but eggs, meat, cheese, leguminous vegetables, and hot spices must be strictly forbidden, and alcohol in the shape of spirits or beer should never be allowed. Fat may at times be sparingly used when its digestion is easily accomplished, but the influence of digestive disturbance upon the kidney must never be lost sight of, and for this reason also food should be given frequently and in small quantity.

Other hygienic measures include rest, and the avoidance of muscular fatigue. This indication may be carried so far as confinement to bed, and in the case of women should always be insisted upon at menstrual periods. Warmth of skin, both to avoid chill and promote perspiration. Baths to favour congestion of the skin, and they are more useful when the skin is saturated with a saline water, the particles of the salt maintaining a stimulating effect upon the cutaneous circulation. Psychical influences, such as fear, anger, anxiety, and business, always increase an albuminuria.

A warm dry climate should be chosen by preference. Egypt is the example given.

Although this notice has run to some length, the subject is merely indicated. So great is the importance of the matter, and so extensive the information contained in the monograph, that it was impossible to say less. We consider it the duty of every conscientious practitioner of medicine to make himself familiar with the contents of Senator's monograph. Doubtless the material will be supplemented, and on some points modification will take place, but as a whole the essay is the most complete within easy reach of English students.

Dr. Stewart's paper is published as a matter of history, and as an act of justice to him. There is nothing in the tenor of his writing to show that Stewart himself was desirous to claim any priority in discovery. It only evidences a careful and earnest search after truth, and in this most noble capacity the monograph is deservedly preserved as an encouragement and example to those who would inherit his mantle.

The subject of floating kidney is one upon which difference of opinion is still possible. Not long since an eminent surgeon declared that he had never seen its existence demonstrated on the *post-mortem* table; and still adverse statements are made with regard to the symptoms to be attributed to it and the necessity for operative interference. Under such circumstances the call for the republication of Landau's monograph is very obvious.

It could scarcely be expected that the four years which have elapsed since the first publication of this paper should be infertile of further investigation, and, therefore, Dr. Champneys in editing this translation had abundant scope for comment and criticism. A most judicious advantage has been taken of these opportunities, for the reader is not troubled by any vexatious interference, though many important statements are qualified by trenchant remarks. So far as it goes the paper is full and explicit. It gives a very comprehensive idea of the normal situation of the kidneys and the parts concerned in their dislocation, as well as of the symptoms of displacement and their diagnosis from similar symptoms produced by different causes.

A considerable space is devoted to the subject of the so-called incarceration of the kidney and its complications. The author's estimate of the dangers arising from floating kidney is small, and his advocacy is against operative interference. But, upon this subject least of all is the monograph up to date; indeed, it would be difficult, notwithstanding much recent literature, to indicate with any precision the prevailing opinion. Meanwhile, as a sound and scientific digest, Landau's paper and Dr. Champneys' comments will be read with profit by all interested in the subject.

On Renal and Urinary Affections. By W. HOWSHIP DICKINSON, M.D., F.R.C.P. In Three Parts. Part III. *Miscellaneous Affections of the Kidneys and Urine.* London: Longmans, Green, & Co. 1885.

DR. DICKINSON writes as one who through a long period of years has been an eager observer, and an original interpreter of facts. He publishes this work as the mature result of more than a quarter of a century of patient and industrious labour. The facts and observations recorded here are with few exceptions his own, the things he has seen; and the views educed from his facts, although, perhaps, not in full accord with the most modern results of physiology and pathology, represent the conclusions of a sagacious and practical mind. It is characteristic of a work of this kind that it gives an imperfect account of the labours of other observers. We should gather that the author has been a diligent attender at the meetings of the two great societies of London, the Pathological and the Medico-Chirurgical, where he could, by personal observation confirm the statements made, but otherwise, he seems to have, for the most part, ignored the recorded observations of others. Hence it is that while we have frequent references to the transactions of the London societies, and the reports of London Hospitals, there are few references to authorities either in this country or abroad. According to the point of view, this will be regarded as a recommendation of the book, or otherwise. We confess to the feeling that the value of the work would have been enhanced, if the author had been able to extend his vision somewhat.

The part of the work before us forms a substantial volume of about 700 pages, and it is concerned with the miscellaneous affections of the kidneys and urine, the two parts already published having been taken up with the subjects of diabetes and albuminuria. In the present part the author discusses the subjects of Abscess of the kidney, Pyelitis, Suppurative perinephritis, Thrombosis and Embolism, Renal Tumours, Tubercle of the kidney, Hydronephrosis and Pyonephrosis, Cystic disease of the kidney, Renal Calculi, Misplacement, Displacement and Mobility of the kidney, Urinary Paraplegia, Diseases of the Ureters and large Blood-vessels, Renal Parasites, Chyluria, Intermittent Hæmaturia or Hæmoglobinuria, Phosphuria, Albuminuria, Hæmaturia, Suppression of urine. It will be seen from this list that a large area is traversed, and it may be said that almost every subject is treated in the same practical spirit.

It is consistent with these characteristics of the work that the pathology is, in many cases, scarcely up to date, and some of the views given occasionally fanciful. As an example of this we may cite the author's explanation of the origin of the abscesses in the surgical kidney. These abscesses, as has been shown by several authors, among others, by Steven in this *Journal,* take origin in connection with micro-organisms, which have extended up the tubules and formed colonies in the latter. This is how Dickinson explains the pathology.

"The disorder has its origin in the regurgitation of urine charged with morbific products. This, forced backwards by the retention general in these cases, distends or occupies the straight ducts. Thence by transudation, or similarly, it enters the neighbouring blood-vessels, and charges them with an infection resembling in its results that of pyæmia. This is distributed by the veins to the rest of the gland, sowing abscesses in their course, and ultimately causing constitutional symptoms analogous to those of pyæmia otherwise derived."

The statement that a virus is sown by veins in an organ is surely an extraordinary one, as the veins convey the blood from the organ, and do not distribute it "to the rest of the gland."

As another example of somewhat old pathology, we may refer to the author's remarks on suppression of urine from concussion. He seems to think that the suspension of the nervous function which destroys the power of voluntary movement, and interferes with respiration, has directly the effect of suspending the urinary secretion. We have here a comparison of things which differ, and an ignoring of the physiological processes in the kidneys sufficient to make a modern physiologist open his eyes.

The article on tubercle of the kidney is a very interesting one, and is particularly valuable in the evidence adduced as to the association of this disease with tubercle in other organs. Hydronephrosis is also very fully discussed, although we differ from the author in one point as to the causation of this condition. He regards as a very problematical cause the occurrence of obliquities, sudden bends, and valvular arrangements of the ureter at its origin. We have seen more than one case in which such an origin was apparent. The somewhat paradoxical fact that hydronephrosis is greatest when the stoppage is incomplete is very concisely stated by the author in the following words:—

"When the ureter is stopped two processes ensue—dilatation and atrophy; when the stoppage is incomplete the former predominates, when complete, the latter. The urine is secreted with so little force that the point of accumulation is soon reached, which puts an end to it. The gland will now secrete only as much as is removed by absorption and leakage. The absorption is insignificant; if there be no leakage the secretion will be virtually at an end, and the organ become effete from disuse; if there be leakage the secretion will go on *pari passu*, the activity of the gland be maintained, and with it a slight but constant pressure upon the cavity. Reviewing the causes of hydronephrosis—meaning by this dilatation enough to be palpable during life—it is clear that the majority involve only partial or intermitting stoppage: stricture rather than obliteration, injuries caused by stones more often than their impassable fixture, valvular entrances and exits, obliquities, twists, and external pressure, whether by arteries or growths."

In the treatment of hydronephrosis the author excercises a judicious caution. In regard to excision, he says:—"Hydronephrosis, chronic and comparatively harmless as it is, can scarcely justify such hazards as are properly incurred in dealing with an ovarian cyst; and as compared with ovariotomy, it is probable that the dangers of removing a large renal cyst through the abdomen will always be the greater. But when the collection is purulent, from stone or otherwise, dangers may threaten, whether by exhaustion or extension, which may warrant the operation, though, as far as we yet know, those are greater than are incurred when aqueous distension is in question."

The largest section in the book is devoted to renal calculi, which are fully discussed in all their aspects. In regard to treatment detailed consideration is given to renal lithotomy and excision of the kidney for stone, and the following are the author's conclusions as to the feasibility of the operation and the circumstances which call for it—

"The system is tolerant of renal calculi more so than of vesical; with pain slight, and danger remote or hypothetical, no such operation as that in question can be justifiable. But in some cases the pain is so great as to warrant much risk in search of cure, and in others the tendency of the disease is such that, should an operation kill, it will only anticipate by a little the action of nature."

The solvent treatment is also discussed with great fulness, and the conclusions arrived at are thus summarised.

"To sum up, the solution of stones whether in the bladder or kidney, is not yet within the range of practical medicine. Lithia is not well borne; potash out of the body in the most favourable circumstances acts slowly; within the body there is the uncertainty as to the nature of the stone, and the suitability of alkaline treatment. When in the bladder, any such tedious and worse than uncertain method can never be opposed to the operation of lithotrity, though when it is impracticable, or as an adjunct to it, acid injections may find the use which has been assigned to them. As to the kidney, enough has been said to show that no methods which have as yet been tried are substantially effective: if the solution of calculi is ever to be accomplished it must be from a new departure."

The author has a section on urinary paraplegia, in which, after referring to the observations of Graves, d'Etiolles, Gull, and Spencer Wells, he concludes that, in the rare cases of paraplegia originating in connection with the urinary organs, it is a mistaken view that the paralysis has a reflex origin. He agrees with those who assert that the paraplegia is due to a myelitis arising by extension of the inflammation from the bladder to the spinal cord, although he confesses that he has never met with a case of the kind. It is singular that the author seems entirely ignorant of the existence of an excellent article on the subject of Reflex Paralysis by Professor Leyden, published by the New Sydenham Society in 1876. His last references are to the observations of Gull in 1856, and Spencer Wells in 1857, and he says specifically that "recent observation has added nothing to the records of reflex paraplegia of urinary origin." In Leyden's article several cases are recorded in which the presence of myelitis was determined on *post-mortem* examination.

The section on renal parasites is a very long one, the chapter on the interesting subject of chyluria being particularly full, including as it does the whole discussion of the habits of the filaria sanguinis.

Intermittent hæmaturia is a subject concerning which very few trustworthy facts have been recorded, and it adds to the value of this section that there are here the records of two cases which were fully examined after death. The author's view of the pathology is, that it is independent of organic disease, and is due to a destruction of the blood corpuscles within their own vessels. The colour of the corpuscles being washed out appears in the urine, and the condition of the urine is that of colouration with hæmoglobin, the proper name of the condition being hæmoglobinuria, and not hæmaturia. The author draws an analogy between this disease and ague, and believes that in its treatment the best results are obtained by full doses of quinine.

We have referred frankly to some of the defects of the book under review; but, when all is said, the work remains a solid monument of industry and sagacious observation.

Clinical Lectures. By Richard Quain, F.R.S. London: Smith, Elder & Co. 1884. Pp. 281, with 40 plates.

This work comprises lectures on some tumours, of bone, the bladder, and testicle; diseases of the urinary organs; places of election for amputation in the lower limb; affections of the shoulder and hip-joints, including fracture and dislocation of the femur; dislocation of the knee joint, &c.

In the lecture on Tumours the clinical aspects of the case justly receive chief attention, though the pathological are not ignored. The author evidently thinks that elaborate disquisitions on microscopic appearances are out of place in the operating theatre or clinical lecture room. Microscopic "observations very materially assist the deductions drawn from the characters of the tumour during the progress of its growth in the living person, and its naked eye appearance after removal. The added observation, however, though needed for scientific use of the pathologist, loses practical value when the disease has been clinically proved to be "malignant." (p. 270). Several cases of *osteoid cancer* and *recurrent fibroids,* diseases which are interesting from either the clinical or the pathological point of view, but much more so when the clinical and pathological conditions are brought into relation with each other, are given. For the former disease he prefers the name *osteoid cancer* as best representing its clinical characters, insists on early operation, and concludes his remarks on the subject with the very useful advice that, "from the proneness of the disease to be propagated in the thorax, strict attention should obviously be given to the search for evidence of secondary diseases in that cavity, as well as in the abdomen, before an operation is undertaken." (p. 19). The section on *recurrent fibroid* is not free from the confusion so common from the habit of restricting the term "malignant" to cancerous tumours. The author, after carefully describing two cases, informs his students that the disease is distinguishable from cancer by various circumstances (p. 41), and that it is therefore "not malignant." A little later he says, "but it is to be borne in mind that, though the fibroid tumour does not usually infiltrate the structure about it, or penetrate the lymphatics,—*cancerous diseases are said to be malignant because they have that effect*—we, nevertheless, cannot consider it a "benign" or "innocent" growth. It may become very injurious, even destructive." (p. 44.) Then, having described its various destructive qualities, he says:—"Seeing that local means, apparently calculated to be effective, have been used ineffectually to hinder the local recurrence of the disease; seeing that independent morbid growths of like kind have been formed in other parts amid the internal organs; and that similar tumours have been reproduced apparently because of pressure on healthy structures; from these facts I apprehend we must conclude that the disease—in some degree, and in some instances at least—affects the system generally." (p. 46.) Surely the picture he draws of the disease represents it as malignant enough. Why he refuses to call it so appears from the sentence we have quoted in italics, where he defines malignancy as the property of infiltrating surrounding tissues, and infecting the lymphatic system. But, even if we accept his definition of the term the confusion remains, for he himself shows how the recurring fibroid tumour may infiltrate one tissue at least, namely, the connective tissue (p. 44), and in a previous lecture he has told how in ten cases of what he still chooses to call osteoid *cancer* in the femur, "examined *post-mortem*, the lungs were affected with the disease in all but one; while the lumbar lymphatic glands were involved in three cases only." (p. 17).

The term "malignant" is a useful, possibly an indispensable one, but to students it is often a stumbling block from the fact that some strict definition such as that quoted above is insisted upon. "Malignant" being defined, "innocent" is supposed to be its opposite, but what to call the numerous cases of sarcoma, which do not strictly conform to either type, is a real difficulty. It would not simplify the problem to introduce a third term, "destructive," quoted above, one much more difficult to define than either of those we already possess. The more useful and less confusing method is that practically adopted in clinical work, of making "innocent" the restrictive term, and classing all the tumours that do not conform to that type as "malignant," admitting, of course, that of malignancy there are many degrees, just as in physical diagnosis dulness to percussion is "dull" or soundless, and all else is "clear," however slight the resonance may be, or whatever special quality the sound elicited may possess.

The lecture on Amputations of the Lower Limb is the best in the book, and is a model of clearness and conciseness. The main point discussed is the question of short *versus* long stumps, and the author proves very clearly the advantages of the longer stump. We doubt, however, if many surgeons would agree with his approval of partial amputations of the foot (p. 48), a class of amputations which have, in this country at least, been generally abandoned in favour of Syme's amputation at the ankle. At the ankle he prefers Syme's operation; at the knee, Carden's; and his place of election is, in both leg and thigh, the lower third.

In the cases given in the lectures on Diseases of the Shoulder and Hip-joints, the history of the patient has in several instances been followed up for years, which adds much to their value. These histories show how difficult it is to say when a case is really cured, and how necessary it is to keep up the general health and avoid all sources of local irritation for at least a long time. The illustrations of *post-mortem* appearances in the hip-joint in fatal cases and some patients cured of the disease who died afterwards from other diseases, give a very graphic representation of the pathological changes. The treatment recommended is improvement of the general health, and rest, to the latter of which extension is absolutely necessary, being applied in the case of the shoulder-joint by means of the axillary pad, sling, and circular bandage so generally used in fracture of the clavicle. Local counter-irritants are only mentioned to be dismissed, while excision is not mentioned at all. In one of the cases, described as rheumatic gout of the hip-joint (case 25, p. 104) the question might be fairly raised whether it was not really what is now known as Charcot's disease.

The lecture on Dorsal Dislocation of the Femur is illustrated by a drawing of a careful dissection of a recent unreduced case. The position of the bone is carefully compared with that found in previously published cases, but although this case is now over thirty years old (*v. Med.-Chir. Trans.*, vol. xxxi), and many interesting cases have been published since, no attempt has been made to bring the subject up to date. A typical case of simple dislocation of the knee (complete lateral, outwards) is described and figured. Experiments are also given which show that no matter how completely the other ligaments of the joint may be divided, this displacement cannot take place while the crucial ligaments are intact.

The lecture on Fracture of the Neck of the Femur is beautifully illustrated with autotype reproductions of large photographs of the bone, showing both external appearances and sections. The author mentions one diagnostic point which is omitted in most text-books, but which may be very useful to bear in mind in the examination of doubtful cases, when the question is between intra and extra-capsular fracture. It is that ecchymosis in the groin or inside of the thigh shows that the fracture is "near the upper end of the bone but outside the capsule of the hip-joint. The vascularity within the capsule being only that of the bone is inconsiderable, and the hæmorrhage would be confined by the capsule; while outside the capsule the tendons of muscles fixed to the broken bone are torn, and with them the blood-vessels, which are numerous. From that position near the bone the blood is borne forward and inwards by the adductor muscles." (p. 136.)

The lecture on Hernia is a "genuine antique." Though it is valuable from the author's careful judgment and varied experience, that must be the impression conveyed by a discourse on Herniotomy and the questions of opening the sac and dealing with omentum which takes no notice of the bearing of the antiseptic method on the problem stated, and in which the only reference to the radical operation is in a footnote which informs us that "since these clinical lectures were first published an operation for the radical cure of hernia has been devised and carried out.—*On Rupture*, &c., Prof. John Wood." The lecture must be thirty years old.

The lectures on Some Diseases of the Testis are very good. The cases are well recorded, ably discussed, and beautifully illustrated by coloured plates. They include an instance of the rare disease of the testis, *Cholesteatoma.*

On the whole, the book does not satisfy the expectation raised by the high reputation and rich experience of the author. Something better might be reasonably expected from a distinguished surgeon reviewing his hospital work in the retired ease worthily gained by many years of good service, than a reprint of old lectures and essays, almost without comment or apparent addition to show their bearing on the present state of practice or opinion, and without dates or references to previous publications to guide students of surgical history. It is true that a clinical lecture or an essay before a society, by its delivery, becomes to a certain extent fixed in form, and may lose some of its value by being subsequently altered, but any published collection of these is much increased in value when the author takes the trouble to bring the subject up to date by preface, notes, or appendices. That the author has not had the inclination or leisure for that is, in this instance, a little disappointing, for few could have done it better. As it is, the chief value of the book is in the illustrations, which make up nearly half of its bulk, and are of great beauty. If for their sake only the book is worth having.

Specielle Physiologie des Embryo. Von W. Preyer, Professor der Physiologie an der Universität Jena. Th. Grieben's Verlag (L'Fernau.) Leipzig, 1885.

This, a substantial work of nearly 700 pages, and containing nine lithographed plates, and numerous engravings scattered through the text, is from the pen of Professor Preyer of Jena, an author whose name, from previous works, is well known to those interested in physiological science.

The aim of the present book is the special study of the physiology of the embryonic and newly born animal as distinct from that of the adult, and consequently the investigations of Prof. Preyer, while valuable and important in themselves and in their relation to the general subject, cannot be said to possess much practical interest to the physician or surgeon. In general, it may be said of the subject that little has been yet learned from the study of the physiology of the embryo that can throw much light upon the physiology of the fully developed animal. On account of the extreme difficulty placed in the way of making observations upon minute and not very easily obtainable forms, the process of investigation in this particular field has consisted simply in applying in as far as possible to the embryo those methods of physiological research which have been perfected in the study of the adult form, and in the comparison of the results thus obtained with what is already known of the general subject.

Within this limited area, then, the work of Prof. Preyer contains much that is interesting. It sets forth, to begin with, an exceedingly careful and painstaking criticism of all that has already been done in the direction of explaining the physiological changes of the embryo, and is, in addition, the expression of a very large amount of original work performed by Prof. Preyer and his assistants. Upon many of the subjects which he has investigated Prof. Preyer has been able to give the world additional and more detailed information; and in some cases errors and misconceptions in our beliefs have been exposed and new explanations offered. Embryos of all classes of vertebrates have been experimented upon, but as is natural, a large proportion of the work has been done upon those of birds.

The book is divided into eight chapters which treat of, in order:—(1.) The Embryonic Circulation; (2.) Respiration; (3.) Assimilation; (4.) Excretion; (5.) Temperature; (6.) Motion; (7.) Sensibility; and (8.) Growth.

In the first chapter, in his description of the Embryonic Circulation, the author enters with elaborate detail into a great number of points. The exact times at which the heart, in the various classes of vertebrates, first begins to contract, the nature of the first pulsations, their causes, and the influence of temperature, and of all kinds of irritation upon the embryonic heart, have all been fully gone into. In man, the interesting question of the relation of the frequency of the pulsations to the sex of the fœtus, to the varying temperatures of the mother, and the alterations which take place during birth, have been fully discussed. It is pointed out that all embryonic hearts contract strongly long before transversely striated muscular fibres, or nerve cells or fibres can be detected in their substance. Professor Preyer believes the contractibility to be an inherent property of each cell of the heart, and holds that each is specially irritated by the fluid which is entering the organ. The behaviour of the embryonic heart to electricity is interesting. The induction current brings about a strong and long continued systole, a veritable tetanus; while, on the other hand, the constant current has little or no effect upon the contractions. While most authors are agreed that, as a rule, the heart of the female fœtus beats more rapidly than that of the male, Professor Preyer finds that the difference is so small, and the exceptions are so numerous, that he judges it to be impossible to foretell the sex of the child by means of auscultation. He says—"In practice, the enumeration of the beats of the fœtal heart is in no way a reliable method of foretelling the sex of the child. This is the result of my laborious investigations."

Dealing with the question of the respiration of the fœtus, and summing up the results of the various opinions of the causes to which the first respiration of the newly born animal are due, the author says—"The question as to how the first act of aerial respiration in man, mammals, and birds takes place is answered by a protracted research of the author's, taken along with the collected observations of earlier workers. But neither the older nor later opinions are compatible with a fact observed by the author—viz., respiration by means of the lungs while the placental circulation remained intact." "In general, from the researches of the author, it is to be drawn that the first breath of the fœtus is due to (1) strong artificial peripheral irritation, while the placental circulation remains unaltered; (2) interruption of that function of the placenta by which oxygen is introduced into the system, without artificial irritation, but in this second case the natural irritations become effective on account of the increase of irritability of the centre. In a normal birth both forces act at once, strong peripheral irritations from contacts with the skin, also from the change of surrounding temperature and great increase of the irritability of the centre on account of the interruption of the placental circulation."

In treating of the motions of the embryo, Prof. Preyer claims to have discovered that the chick in the egg begins to move much earlier than has yet been believed. Even in perfectly undisturbed eggs he claims to have observed fœtal movements on the first half of the fifth day.

The above extracts and descriptions are sufficient to convey a general idea of the nature of the work done by the author. Great care has evidently been employed in the writing and publishing of the book, and it will doubtless prove a received text-book on the subject of which it treats.

The plates with which the work is furnished are its weakest point. They are needlessly diagrammatic, even for a work upon physiology, and judged simply as diagrams, they are far too elaborate for the purpose intended. The table of contents is excellent, and is likely to save the student looking for a special point from reading much irrelevant matter. The book is also provided with a very elaborate list of names and works for reference.

Bodily Deformities and their Treatment: a Handbook of Practical Orthopædics. By Henry Albert Reeves, F.R.C.S.E., Surgeon to the Royal Orthopædic Hospital; Senior Assistant Surgeon to the London Hospital. London: H. K. Lewis. 1885.

The rapid strides which surgery has made in recent years, more especially as regards modes of treatment and greater exactness in the pathology of individual affections, has necessarily led to a system of specialisation. Thus, the growth and practice of specialism seems but the natural outcome of true scientific advance. Where the evil of such a system is likely to arise, is in a too exclusive regard for the subject matter at issue, so that the more general departments of medicine and surgery being ignored, the real *fons et origo mali* is liable to be overlooked. On the other hand, a general knowledge of the collateral sciences combined with a special application to a particular branch, affords the very best source for advancement, and the teaching of all authors who thus labour will prove profitable alike to patient, pupil, and practitioner.

In this way will Mr. Reeves' book be valuable and acceptable. A general surgeon himself, he has specially devoted his time to the subject of orthopædic surgery, and shows by the practical use he has made of his extensive experience the interest he takes in the specialty.

A few points in the book may be alluded to. Dealing with the subject of scoliosis, Mr. Reeves suggests, among many other causes of the condition, two somewhat novel ones, vertebral articular disease, and arrested or altered growth in the vertebræ. The first cause he believes to have existed in cases where localised pain on pressure and motion were observed, and in one particular instance the condition seems to have been substantiated by an abscess which was found to be connected with a costo-vertebral joint. Much space is devoted to the treatment of the affection, but no mention appears to be made of poro-plastic jackets, which in the hands of several surgeons have been followed by admirable results.

We quite agree with Mr. Reeves' teaching as regards the treatment of spinal caries. To adopt extension previous to the application of a jacket, as in Sayre's method, is a hindrance rather than an assistance to the natural process of cure. Healing in spinal caries is brought about by the falling together of the vertebral bodies. As soon as the caries has stopped and the carious material has been removed, ossification takes place between the two coalescing bony surfaces, and a firm osseous union results. To attempt by extension to separate these parts either during the progress of disease or after it has ceased is simply to delay repair.

In discussing the treatment of the various forms of talipes, Mr. Reeves, with some show of force, disapproves of the operations of osteectomy and osteotomy in young children, believing that by patient perseverance in more conservative measures, even the most severe deformities may be rectified. An operation practised by himself, in which after preliminary tenotomies, a flap of skin is reflected from the sole and some of the deeper structures divided, appears to have been followed by very good results, although the cases were extreme ones.

One of the most interesting chapters in the book, although perhaps not the most instructive from a student's point of view, is that upon genu valgum and osteotomy. The kind of impression one derives from a perusal of this chapter is that of an endeavour on the part of one successful osteotomist (if we may coin such an appellation) to attack an equally successful or rather more successful confrère, and to inculcate the advantages of his own peculiar operation at the expense of a somewhat mistaken depreciation of the more generally accepted and practised one.

Want of space forbids us from entering into all the minute points at issue; but while feeling that Dr. Macewen has, perhaps, not exercised on some points that clearness of diction necessary to be rightly understood, a little more care and consideration on the part of Mr. Reeves would have led to a true interpretation of apparent obscurities. Aside from this discussion, however, we are by no means prepared to accept all Mr. Reeves' dictates. Thus, such a diagnostic assertion as the following is as doubtful in its import as the author would have it certain. The text runs thus—"That excellent connection and perfectly useful limbs result from the external incision there can be no question, and that it is anatomically and surgically preferable to Macewen's, ought to go almost without saying." Again, to say "that in six or seven cases in which temporary suppuration occurred, it was caused by having to change chisels," is little less than absurd. However, as to the merits or demerits of Mr. Reeves' diaphysial osteotomy, as compared with Dr. Macewen's supracondyloid operation, to the discussion of which so much space is devoted, we must leave with the reader to determine.

Among the deformities of the upper extremity is to be found a full description of a not very well known condition termed jerk, snap, or spring finger. The subject of ankylosis and unreduced dislocations also receives extensive treatment.

The book we have thus briefly reviewed very adequately supplies a recognised want, and we feel much pleasure in commending the work to practitioners, who, in the course of general practice, will frequently meet with cases of the character depicted in the treatise.

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1. *Contributions to the Topographical and Sectional Anatomy of the Female Pelvis.* By D. Berry Hart, M.D., F.R.C.P.E. Edinburgh: W. & A. K. Johnston. 1885.

2. *Spinal Deformity in relation to Obstetrics.* By A. H. Freeland Barbour, M.A., B.Sc., M.D., F.R.C.P.E. Being a Thesis for Graduation in Medicine at the University of Edinburgh, for which a Gold Medal was awarded in 1883. Edinburgh and London: W. & A. K. Johnston.

These two works reach us at the same time, are clad in the same garb, published by the same house, and relating to subjects very nearly allied, are produced by gentlemen who display a kindred enthusiasm, and have been associated in literary work in the same department of medical science in former days. There is thus every reason for their being reviewed at the same time and by the same hand.

1. Dr. Berry Hart's contribution may be described as a supplement to his magnificent *Atlas of the Female Pelvic Anatomy*, which we reviewed in a former number of this *Journal* (August, 1884). It consists of the description of "some special frozen sections recently made in the hope of clearing up certain points hitherto obscure." These special points he states to be:—"1, The position of the uterus and

annexa; 2, the relations and boundaries of the ischio-rectal fossa; 3, the structural anatomy of the pelvic floor, with special reference to prolapsus uteri, and what occurs during parturition; and 4, the relation of the ureters in the operation of excision of the entire uterus, *per vaginam*, for carcinoma of the cervix."

On the first of these points it is instructive to note that Dr. Hart admits that the usual anatomical description of the axis of the uterus corresponding to the axis of the inlet of the pelvis, is strictly correct as regards the specimen described, but he evidently would like to discover something abnormal in the position. Again, he shows that the vertical direction of the axis of the ovary noted by several observers, may be the result of the uterus being displaced to the side from the position in which the body lies, from distension of the bladder, or from the pressure of the finger, in the performance of the bimanual examination. In both these particulars it seems probable that the old and long accepted descriptions will prove to be correct. As to the ischio-rectal fossa, he has really nothing new to tell, for the fact that the gluteus maximus bounds it posteriorly, and takes some small part in the support of the outlet of the pelvis, is no novelty to any one having a knowledge of anatomy. Under the third head the author discusses the influences which tend towards the production of prolapsus uteri; his arguments being based upon the existence of an "entirely displaceable" and an "entirely fixed" portion of the pelvic flood as set forth in his Graduation Thesis. As to the position of the ureters, Dr. Hart finds that they are, on an average, situated about an inch from the vaginal portion of the cervix uteri, and one inch from the side of the uterus, so that, as he remarks "only by wide cutting could they be injured," in extirpation of the uterus.

The drawings of the sections are well done, and the engraving is excellent; the plates would, however, gain much in appearance and intelligibility by being coloured.

2. Dr. Freeland Barbour's Graduation Thesis consists of an elaborate study of thirteen kyphotic and scoliotic pelves contained in the Edinburgh Museums, to which is added a description of frozen sections of the body of a female cadaver, who had been the subject of caries of the upper dorsal region.

Into the details of the description of these pelves we cannot here enter; the subject is one of much complexity, and the conclusions arrived at, although important, are certainly debateable.

As to the operative interference required in such cases, Dr. Barbour says, "as to the limit for forceps, if the child's head is lying antero-posterior, we shall have the 3½ inch bi-parietal diameter engaging in the transverse of the outlet. The head will admit of a certain degree of compression, but, on the other hand, the blades of the forceps take up some room. A transverse of 3¼ would be the limit for forceps in the kyphotic pelves. The high maternal mortality in cases of kyphotic pelves would justify perforation and cranioclasm at once (without trying forceps) with a transverse below 3¼."

The engravings of pelves are excellent, those of two ricketty skeletons especially being worthy of the highest praise; those of frozen sections, on the other hand, are inferior, and scarcely do credit to the skill of draughtsman and engraver.

A Text-book of Human Physiology, including Histology and Microscopical Anatomy, with Special Reference to the Requirements of Practical Medicine. By Dr. L. Landois. Translated, with additions, by Wm. Stirling, M.D., D.Sc., Professor of Physiology in the University of Aberdeen. Vol. II. London: Charles Griffin & Co. 1885.

The second volume of Stirling's translation of Landois' text-book presents features similar to those of the first volume, which was reviewed in the May number of this *Journal.* The volume includes the physiology of the kidneys and skin, of the motor apparatus, of the nervous system, of the senses, and of reproduction. The value of the book to the practitioner is, perhaps, more abundantly evident in the second volume than in the first. As an example, take the sections on the urine. The subject is discussed in a very methodical manner, first, the physical characters of the urine, then its organic and inorganic constituents, its abnormal constituents, and deposits found in normal and abnormal urine. In each case the normal quantity of each substance, the variations to which it is liable and their causes, and the qualitative and quantitative tests used for the detection of the substance, are fully considered. The various tests now employed for albumen and sugar are stated very distinctly, and the method for estimating each. The sections on the occurrence and detection of blood and bile are also exceedingly useful. Indeed, this chapter on the urine is eminently a practical one, and one that is likely to be of advantage to both student and practitioner. In the chapter on electro-physiology are brief but sufficient descriptions of various forms of galvanic elements, of the rheocord, induction coil, and galvanometer. There is also a section on the therapeutical applications of electricity, but its value consists mainly in the diagrams of motor points incorporated with it. The practical man will also view with satisfaction the paragraphs devoted to tendon and other reflexes in the chapter on the physiology of the nerve-centres. In this chapter a very successful use has been made of schematic and other figures to aid in the understanding of the structural relationships of cerebrum, cerebellum, basal ganglia, medulla, &c. The thoroughness of this part of the volume owes much to the large additions in type and woodcuts made by Prof. Stirling. It may be mentioned, as a proof that the desire to maintain the practical value of the text-book has increased with its progress rather than diminished, that Professor Stirling has introduced a description of two forms of perimeter into the section devoted to the eye. Other modern appliances in connection with the sense organs have not been omitted, notably the laryngoscope, the ophthalmoscope, the phakoscope, the ophthalmometer, the Eustachian catheter, the æsthesiometer, &c. On the whole, the work, as completed, offers to students and practitioners a more complete reference book on physiology than is to be found elsewhere in English. In Professor Stirling's hands it has grown from one volume to two, each of which is almost equal to the one volume of the German edition. A large amount of the increased space is occupied by new illustrations, to the number of 219, all of them of merit.

The publication is to some extent a new departure for English text-books of Physiology. As an attempt to recombine in one book the subject-matter of different departments of physiology, we think it merits a like success in this country to that the original has already met with in Germany.

The Care of Infants: A Manual for Mothers and Nurses. By Sophia Jex-Blake, M.D. London: Macmillan & Co. 1884. Pp. 109.

This little manual embraces everything which is necessary for a mother and nurse to know regarding the upbringing of an infant. In treatises of this kind rules are laid down and directions are given which are usually quite impracticable, and are never carried out; but in this manual there is nothing superfluous, and every precaution given is judicious, and every direction is within the sphere of practicability. It is written in plain language, devoid of all technicalities, and the subject matter may be easily comprehended by any one of ordinary intelligence and education.

Medical men will find this to be a very useful little book for young mothers especially: and we have pleasure in recommending it to such as a safe and useful guide.

NOTES FROM VIENNA.

REMARKS ON THE ANATOMICAL CHANGES IN THE SKIN AFTER DISAPPEARANCE OF THE CLINICAL MANIFESTATIONS OF SYPHILIS.—By J. Neumann, Professor in the University, Vienna.

A question which writers on syphilis have long attempted to determine is—at what period the syphilitic virus passes into the blood, and what length of time after this is required before it makes its effects manifest on the skin and mucous membranes.

Injections of blood taken during the period of incubation might decide the point, but these have as yet never been performed. On the other hand, injection into a healthy individual of serum taken from an indolent lymph gland, the result of a hard chancre, appearing four weeks after infection, sufficed to produce the disease. (*Bumm. Vierteljahrschr. f. Dermat. u. Syphilis,* 1882, p. 287.)

From clinical observation we know that, as a rule, 50 or 60 days intervene between infection and the appearance of symptoms on the skin and mucous membrane.

The general state of health preceding the appearances on the skin is the index by which we judge whether the organism has been affected severely or mildly by the virus. In individuals who are of intemperate habits, or who are placed unfavourably as to dwelling and means of livelihood, the general affection may occasionally appear early, while in those who have suffered subsequently to infection from diseases attended with fever, as erysipelas, or in those who have adopted preventive treatment, as inunction or iodide of potassium, these general symptoms may be delayed. Occasionally the skin eruption is absent, or there is present only desquamation and a general swelling of the glands.

A skin which, on clinical examination, up to the end of the eighth week, reckoning from the time of infection, shows no noticeable eruption, is anatomically unchanged. Quite otherwise is it where the secondary manifestations have been present, where the roseolar spots have faded, the papules desquamated, and the lichen and pustular efflorescences have disappeared. At this period the patient is in the state at which he usually arrives after medical treatment. It is at this stage that microscopical examination is of the greatest value, because it furnishes incontrovertible proof that with the disappearance of the microscopic, and therefore clinical symptoms, the changes in the skin have in no way been removed. That, indeed, after 4-8 months have passed away, we can still detect products of the disease in the skin and its immediate neighbourhood.

I will now describe several cases to you which have come under my observation, and then mention what may be deduced from these.

S. A., admitted with syphilitic maculæ. The disease remained for four months after the skin eruption had been absent four weeks. Proliferation of pigmented exudation cells round the vessels and follicles, and in the papillæ of the skin.

N. F., admitted 26th May. Has been ill for 10 weeks. Livid maculæ on the skin of the body and extremities. Thirty inunctions were given, and the eruption disappeared. State of the skin eight days after disappearance of the exanthem — Here and there the lumen of the blood-vessels is patent. Close to their walls spindle-shaped cells are seen. At other places the horizontally running blood-vessels are plugged. The tissue of the cutis is clouded with granules, here and there with pigmented exudation cells. Its deeper layers are, however, normal. The proliferation around the duct of the sweat gland is small in quantity; the material plugging the vessels appears here shrunken and drawn out. The rete cells are pigmented.

Mature Desquamating Papules.—W., admitted four months after disappearance of symptoms. The cutis tissue is molecularly clouded, proliferation around the vessels principally in the upper layers of the cutis. The deeper layers intact. The covering of the sweat gland is granularly clouded. Pigmented exudation cells are present.

B. I., admitted 30th May. Duration of disease, seven months. On the body and extremities there is no exanthem. Lenticular eroded papules on the genitals and around the anus. Psoriasis of the mucous membrane of mouth. The skin, seven months after onset of disease, shows spindle-shaped cells arranged around the vessels in rows and also standing singly.

E. I., admitted 16th July, 1884, with small papular syphilides. The disease has been present probably four weeks. State on 3rd January, 1885—On the body, in groups, are pigment spots, as large as hemp seed or lentils, slightly excavated in the centre. Report of microscopical examination after the disease has lasted seven months:—Close to the blood-vessels are exudation cells, partly spindle-shaped, partly round. The walls of the sebaceous glands are thickened. On cross section there is proliferation around the hairs and thickening of their roots.

E. A. The tissue of the cutis lying between the vessels of the cutis running horizontally and the papillæ is much altered in character. It has become more homogeneous in character, and appears clouded uniformly throughout. Proliferation of cells around the blood-vessels and ducts of several glands is present. Pigmented exudation cells lie in the papillæ. On cross section the endothelium of the blood-vessels is seen proliferating.

H. Eight months after infection. . The epidermis is separated from the rete, without cell proliferation. The capillary layer is in the same condition. A few pigment cells are seen. The tissue of the cutis is cloudy. In the papillæ and walls of blood-vessel the pigment is of an orange tint and is granular, in some parts homogeneous. The cutis shows granular clouding, the exudation cells are spindle-shaped.

From these reports it is evident that, shortly after the skin manifestations have run their course, there is a noticeable production of round cells in the cutis and its neighbourhood, in the vessels, in the sweat glands, and in the sebaceous glands, both with and without pigment. At the same time the tissue of the cutis is clouded granularly.

Consequently the effects of the virus have not that ephemeral character which is at first apparent. The infiltration is, no doubt, not so thick as in very recent cases; the swelling is not very marked. The exudation cells are most abundant in the covering of the blood-vessels, around the ducts of the sweat glands, and around the hairs and sebaceous glands. Here and there they are found in the upper layers of the cutis, but here they have lost their round form, are more spindle-shaped, and contain pigment. If a longer time have elapsed since the onset of the disease, the cells lie around the vessels and follicles of the skin in a thin layer, while the walls of the vessels and glands appear thickened.

It is very difficult to predict what length of time must elapse before all traces of the disease are totally eradicated. It is not possible to retain localities of the skin accurately marked out during a number of years. It may require not only months but years before a complete *restitutio ad integrum* is attained.

These investigations of skin which, to the naked eye, appears normal, have a high practical as well as theoretic value. They teach that, for a length of time after the patient appears healed, the clinical symptoms having been removed, diseased products are still lying in his tissues, these being visible only to the eye furnished with the microscope. Thus, when the disease re-appears on the same spot where it was formerly situated, we are not to regard this as in all cases a new manifestation. As, for example, ring-shaped efflorescences following roseolar spots, which in turn give place to punctiform circularly arranged tubercles. Such cases may arise from the residuum of the virus never altogether absorbed. It assumes new activity, and, advancing towards the rete Malpighii, forms fresh efflorescences. Such an occurrence can arise spontaneously, but is more usually produced by some slight irritation. The designation employed by Tarnowsky, *cauterisatio provocatoria*, has its foundation in this idea.

In particular parts of the skin and mucous membrane we can follow this process very clearly. Thus, on the mucous membrane of the lips, cheeks, anus, and genitals, where mere chemical and mechanical irritation causes excoriation, cell proliferation is easily excited in the papillæ. Wet papules are thus produced, and in this way form centres of infection.

We must not thus too readily condemn Fournier and others who retain patients under observation and treatment as long as a year, because the syphilitic products are present as long as this, though not visible to the naked eye.

Fournier treated for two years, with protoiodide of mercury, 5-10 ctgm., *pro die*, those of his patients who suffered from recent syphilis. He commenced treatment not before the appearance of secondary manifestations, and pursued it intermittently. His scheme was as follows:—

5-6 weeks, daily 5-10 ctgm. protoiodide.
4-6 weeks, pause.
4-8 weeks, treatment.
3 months' pause.
4-6 weeks, treatment.
3 months' pause, and so on during two years.

During the second year he administered iodine in the intervals of the mercurial treatment, thus:—

4-6 weeks, protoiodide.
4-6 weeks, iodine.
3 months' pause.

In the third year he recommended the use of iodine alone in a similar manner.

He made 187 observations on married people in which the father was thus treated. From these 156 children were born, all of them free of syphilis.

The success of my systematic hypodermic treatment with iodoform, which has well nigh abolished a reappearance of symptoms, seems to be owing to the gradual absorption of the iodoform into the system. By examinations of animals several months after such treatment with iodoform, I have found minute quantities of that substance in the subcutaneous tissues.

According to Virchow we must attack the local manifestations of syphilis with every variety of treatment, because an obstinate dyscrasia presupposes an obstinate local affection, or a persistent importation into the blood of diseased material.

The syphilitic virus, though it early gains access into the blood-vessels, does not confine its wanderings to that area, but after a time affects the lymphatic glands also. According to Virchow it may at this stage be destroyed by suppuration, or it may increase in amount. Thus, on the one hand, every deposition of the virus may lead to its destruction; or, on the other, may be an additional source of infection. Only the moist fresh productions of the disease are infectious, the dry cheesy tubercules have already become harmless.

Virchow's theory as to the glands can, however, only partially be accepted by us. We know that other organs, and occasionally the skin, may contain infectious material, and we have seen that these parts may either spontaneously, or by external irritation, form new centres of disease. The organism appears. once having become syphilitic, to retain this state for a very long period, and has the power to communicate it to other organisms and to transmit it to its descendants.—*Wien. Med. Wochenschrift.*

MEDICAL ITEMS.

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

Treatment of Cholera in Paris during the late Epidemic.—The following interesting notes, which appear in the "Paris Letter" of a foreign correspondent of the *St. Louis Courier of Medicine* (March, 1885), describe the results of inquiries as to the mode of treatment adopted in dealing with the recent epidemic of cholera in France:—

"I may here remark that quite a discussion has taken place in the French Academy of Medicine concerning the nature of the epidemic, one party asserting a premonitory stage (premonitory diarrhœa) and the other denying it.

"M. Guerin is the chief supporter of the first named belief. He is a spare man, rather old but of intellectual appearance, and I am told is very polemic in discussion. Our reception was quite pleasant, and, after an allusion to his published articles, the doctor gave his treatment, which he said is quite simple and the same as advocated and practised by himself in 1831. In the premonitory stage, he enjoins abstinence from solid food. For the vomiting and purging he gives charcoal and laudanum. When the vomiting and purging have ceased, he gives one dose of the sulphate of magnesia to eliminate the *materies morbi*—one dose only, but a good sized one. In collapse, he treats only the symptoms. No opium or specific remedies. If the body is cold he makes warm applications, but does not use friction. When convalescing he gives sustaining treatment—iron and alcohol. He does not believe in the cholera microbe. He claims to have saved 70 per cent of his patients, and states that he has had cholera himself five times, the last time after his visit to Toulon last summer. He asserts that cholera still exists in Paris to-day.

"Our next call was on Brouardel, Professor of Medical Jurisprudence in the Faculty of Medicine, one of its youngest members. His age is about 40. Brouardel was President of the French Commission sent to Marseilles, Toulon, and other cities of France last summer during the epidemic. I valued particularly this call, because of the high reputation enjoyed by the professor, and because in a moment's observation I
he is a brainy, active man of the present, at just
in his career when his past is a warrant of
future that is before him gives assurance
Brouardel says there has been no cholera
e weeks, but he expects to witness its
e spring. He states that it was undoubtedly
t. As to treatment, since his appointment
holera Commission, he had received as
rs giving various modes of treat-
tained any valuable suggestions
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mittently.
5-6 weeks, daily
4-6 weeks, pause
4-8 weeks, treat
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During the second year
intervals of the mercurial tre
4-6 weeks, protoiodide.
4-6 weeks, iodine.
3 months' pause.

except the experiences of Professor Hayem with intravenous injections, to be detailed farther on. Brouardel says that all the doctors agree upon the same general plan of treatment, viz., treatment of the general symptoms. To relieve the cramps he recommends hypodermic injections of morphia, yet enjoins circumspection, because in some cases, if too large a dose is given, when reaction comes on, the morphia seems to retard favourable progress.

"After this assertion by Brouardel that no progress in the treatment of cholera had been made during the recent epidemic, strengthened as it was by the statement of Guerin that his treatment to-day is the same as it was in 1831, more than a half century ago, it seemed useless to call on others excepting Hayem. Yet, through the aid of Dr. Sicard, I visited the following hospitals where cholera was treated (nearly all the hospitals had cases) viz., the Hôtel Dieu, Hôpital Charité, Hôpital Cochin, and Hôpital Saint Antoine, the last named having received the greatest number of cases, namely, two hundred and fifty. I talked with the internes of these hospitals, and from one who had followed the treatment at the Charité Hospital I obtained the method of Professor Peter, another cholera expert.

"Professor Peter's treatment.—Stage 1. Infusion of rice with ten drops of laudanum. No nourishment. In algid stage: warmth, by means of warm blankets, bricks, or hot irons; avoid opium. He does not use friction. In period of convalescence, quinquinia, iron, good food, toddy. For disinfecting the room he uses carbolic acid and borate of soda.

"From another interne I learned Professor Cornil's usual treatment at the Hôpital Pitié. In the algid stage a cordial potion, with twenty drops of laudanum. Frictions with turpentine oil, poultices sprinkled with same. For the cramps, morphia hypodermically. At this hospital hypodermic injections of caffeine were tried in the stage of collapse, but the results were bad, causing gangrene of the skin. Hayem's method and solution (chloride of sodium and sulphate of soda in water) were also employed in ten or twelve cases. Four pints were introduced into the vein at one sitting. Œdema of the legs and sometimes general anasarca followed this operation, also œdema of the glottis. One patient is said to have died of œdema of the glottis. It is true that one or two cholera patients had œdema in whom the intra-venous injections had not been used, still, this unhappy complication was attributed to the injections. After due reflection I have concluded to note the above, although it is the statement of an interne. Professor Hayem states he has had no unhappy result from the use of intra-venous injections in his own practice, yet if œdema of the glottis has followed in the practice of others, it is as well to know it.

"Our final call was upon Hayem, Professor of Therapeutics in the Faculty of Medicine, a man between forty and fifty, whose coal black hair, whiskers, and eyes give him a striking appearance. I think he was at work on the very subject that brought us; at any rate he showed us a mass of manuscript to be published in about a month in the *Bulletin Général de Thérapeutique.* He has already published an article on intravenous injection in cholera in the same journal of 30th November, 1884. His treatment in the first stage is salicylate of bismuth in doses of four or five grammes. He also uses morphia hypodermically and frictions with chloroform liniment. When the heart's action is feeble he gives stimulants, and applies warmth to the body if cold. In collapse he gives hypodermic injections of ether—two, three, or four grammes in twenty-four hours. In collapse he also resorts to the intra-venous injection of the following formula—

Water, - -	1,000	grammes	=	one litre or pint.
Chloride of sodium,	5	,,	=	75 grains.
Sulphate of soda,	25	,,	=	375 ,,

"The above he uses at one injection. Formerly he employed one gramme of carbonate of soda in the solution, but has discontinued it. He has used these injections in ninety cases. When asked the percentage of recoveries, he stated that the tables had not been made out. They will appear in his article. He said, however, that he had had no unfortunate result following their use. He showed us the apparatus which he had devised for giving the injections. I purchased one the next day at Galante's for twenty francs (four dollars), and was told that quite a number were sold last summer, showing that the method was used to a considerable extent. I will not attempt a description of the instrument further than to say that it is simple in construction, and consists of a long piece of rubber tubing with a bulb at the centre. One end of the tube rests in the vessel containing the solution, the other is attached to the cannula which is inserted into the vein. At each end of the bulb is a valve, and the construction is such that each pressure upon the bulb injects twenty grammes of the solution.

"He generally chooses one of the basilic veins and operates with a pair of spring forceps and scissors. First making a transverse incision through the skin and afterwards through the cellular tissue, he grasps the vein with the forceps, and with the scissors cuts transversely. He then introduces a silver cannula about two inches long, in which is a close-fitting probe, which prevents the admission of air. The end of the rubber tube above mentioned is provided with a smaller cannula made to fit nicely into the one that has been inserted into the vein as soon as the probe has been withdrawn.

"The injection of one litre (or pint) of the solution generally takes five or six minutes. Sometimes more than this quantity is injected at a sitting. The solution injected is kept warm, about the normal temperature of the body, by immersion of the vessel holding it in another containing hot water, and to prevent its cooling in transit the bulb itself is worked under water of the proper temperature. This also prevents all possibility of air entering through the valves. When from any cause it is difficult to open a vein, he throws the solution into the peritoneal cavity.

"In all modes of treatment above detailed, there will be noticed a striking absence of acids or other remedies based on the existence of the comma bacillus. The comma bacillus has very few believers in Paris, and I believe that French prejudice has something to do with it, just as British commerce influences English opinion."

General Effects of Cocaine.—In a lecture delivered recently, Dr. S. Frend described some experiments he had made to illustrate the stimulating and restorative power exerted by the muriate of cocaine. The exhilarating effect of the ingestion of from 0·05 to 0·10 gramme of the drug lasts four or five hours, and disappears by degrees without being followed by depression. This effect of cocaine can be tested by the dynamometer. Under the influence of 0·10 gramme of cocaine an increase of power of pressure of the right hand of 2 to 4 kilogrammes, and of that of both hands of 3 to 6 kilogrammes, has been registered. This effect ensues shortly after the taking of the drug, and is best shown if it is taken while the system is in a condition of great depression. The daily fluctuation of the muscular strength which takes place in correspondence with the daily fluctuation of the bodily temperature, as shown by Dr. Max Bruch, is also to be taken into account in studying the effect of cocaine on the motor power.—(*Lancet*, 4th April, 1885.) *The Practitioner*. June, 1885.

Cocaine in Burns.—Dr. Weiss writes: On 25th December, I was called to Professor L. An atomiser which he was using had exploded, the hot steam badly scalding the Professor's lips, nose, eyelids, cheeks, and forehead. Pain was so intense that I apprehended general convulsions. I sent for sundry topical remedies, amongst them a two per cent solution of hydrochlorate of cocaine. In the meanwhile I covered the injured parts with pieces of cloth dipped in olive oil; on the top of these I applied ice-water compresses, renewing them every minute, without affording the slightest relief. When the medicaments arrived, I touched the injured parts with a hair-pencil dipped in the cocaine solution. I had scarcely finished when all pain had entirely vanished, without any return. At my visit in the evening I found the patient quite easy and in good spirits.—(*Wiener Med. Woch.*, 8th January, 1885.) *The Practitioner.* June, 1885.

Cocaine as a Hæmostatic.—Dr. W. F. Waugh records a case of purpura with repeated hæmorrhages from the lips and gums, in which the application of a 4 per cent solution of hydrochlorate of cocaine proved eminently successful, after the failure of many other hæmostatics to arrest the bleeding. —(*Philad. Medical Times*, 21st Feb., 1885.) *The Practitioner.* June, 1885.

Cocaine in Cauterisation.—Drs. Randolph and Dixon state that when a saturated solution of cocaine in strong nitric acid is applied to the uninjured skin, the ultimate result is precisely that which would occur after the application of pure nitric acid, but the time required for the formation of a deep eschar is considerably longer in the former case. The sensation which follows cannot be accurately described as painful, a slight pricking only being felt shortly after the mixture is dropped on the skin.—(*Philad. Medical News*, 24th Jan., 1885.) *The Practitioner.* June, 1885.

Cocaine in Tinnitus Aurium.—Dr. H. G. Sherman, of Cleveland, Ohio, has successfully used cocaine as a local application for tinnitus aurium. A patient suffering from chronic otitis media, who had long been treated by all known methods, came to him suffering intensely with noises in the ears. A 4 per cent solution of cocaine was instilled into the ear. Tinnitus and deafness were lessened. A second case was tried with similiar results.—(*New York Med. Record*, 15th Nov., 1884.) *The Practitioner.* June, 1885.

Hypodermic Injection of Cocaine.—M. Dujardin Beaumetz has been using with success hypodermic injections of cocaine in such minor surgical operations as the opening of an abscess. He insists upon the maintenance of the lying position on the part of the patient, injections in the standing or sitting position being usually followed by faintness. The dose injected by him has been 1 ccm. of a solution of the strength of $\frac{1}{50}$th per cent, and the sedative action from this dose has usually been apparent in from five to ten minutes.—(*Progrès Médical*, 21st March, 1885.) *The Practitioner.* June, 1885.

Oleate of Cocaine.—Dr. E. R. Squibb, of Brooklyn, in a recent communication, stated that the results of the application of the aqueous solution of cocaine to the skin for the purpose of producing local anæsthesia had proved very unfavourable. The chief difficulty in its successful application had appeared to be the difference between the epidermis and the epithelium of mucous membrane, and the impermeability of the former. Now, there was no possibility of finding a liquid which would pass the epidermis with the same rapidity that the watery solution passed the epithelium; but it had occurred to him that if a preparation could be made which would pass one seventh as fast, and if it were made seven times as strong, the conditions would seem to be met for making as successful applications of cocaine to the skin as to the mucous membrane, as at present practised. He next gave a *résumé* of the history of the preparations known as oleates and their various applications since they were first mentioned by John Marshall, F.R.S., in a lecture in 1872, at the end of which he said that ever since the discovery of the powerful anæsthetic action of cocaine on mucous membrane he had desired to make an oleate of the drug, but on account of its scarcity he had not been able to make any experiments with this in view until 1st February, 1885. He then gave an account of the various steps by which he had arrived at what he believed to be the best preparation for use—namely, one containing twenty-five per cent of cocaine in an excess of oleic acid, which was just about seven times the strength of the ordinary four per cent aqueous solution sold in the shops. It was a very expensive article, costing six dollars a fluid drachm; but there was no necessity for using more than a drop or two of it at a time. Next, having narrated a considerable number of experiments which he had performed for the purpose of testing the anæsthetic power of the oleate when applied to the skin, he stated that the conclusion thus reached was that the hope which had been entertained that cocaine employed in this way might prove a useful anæsthetic for the skin had been completely disappointed. Except for certain special applications, as, for instance, to the glans penis, anus, &c., and possibly for the relief of trigeminal neuralgia, in which it had not yet been tried, the oleate of cocaine had to be pronounced a useless preparation.—(*Boston Med. and Surg. Journ.*, 12th March, 1885. *The Practitioner*. June, 1885.

Protective Treatment of Open Wounds.—In a paper read before the New York County Medical Association, 16th February, 1885, and reported in the *New York Medical Journal*, Saturday, 28th February, 1885, Dr. Theodore R. Varick formulates his views and practice in the treatment of fresh wounds. After referring to the albumen of the blood serum and the methods by which it may be coagulated, he continues:—"In a coagulated state it covers the face of the stump or surface of the wound, forming a perfectly fitting impenetrable shield, plugging up every capillary stoma; when heat is the agent employed, it constringes every arteriole and venule; and, if applied before the outward flow from the divided vessels has ceased, makes the patient *absolutely safe* from any septic infection whatever from without. Although it is hard to prove a negative, yet, after an observation of its effects for a period of nearly six years, I have to meet with the first case of septicæmia in my practice. My practice is, and has been for nearly six years, immediately the larger vessels have been tied, to apply water (slightly below the boiling point) freely and continuously to the abraded surface until all the oozing is stopped, the parts are thoroughly glazed, and the red hue of the tissues is slightly deadened. The effect is not only to form the protective shield before mentioned from autogenous material, which is always available, but it mitigates shock, it promotes reaction, and accelerates healing in a marked degree." Dr. Varick stated that before he adopted the method of treatment under consideration, many of his patients died after apparent reaction from primary shock. Since its adoption, no death from either primary or secondary shock has occurred in his practice.—R. S. T.

How to see one's own Retinal Vessels.—Dr. Maher, of Sydney (*Australasian Med. Gazette*, Nov., 1884), describes a new method by which this may be accomplished.

Standing a short distance (ten or twenty feet) from a light gas jet, in a dark room, and covering one eye, say the left, with the left hand, the observer takes between the forefinger and thumb of the right a strong convex lens, and holds it at about its focal distance in front of the right eye. Then, steadily gazing at the light through the centre of the lens, he shakes the lens rapidly backward and forward along its axis, or up and down or from side to side. After a few seconds the shadow of the fovea centralis appears in the axis of vision as a light yellow patch studded with dark coarse granules. Simultaneously the retinal vessels in the region of the yellow spot, including the finest capillaries, appear as dark cords against the yellow light. This appearance, according to Dr. Maher, is not unlike plate 72 in the last edition of Nettleship's book on *Diseases of the Eye*, except that the difference between the arteries and veins is not so marked, and that one gets a more extensive view, seeing the shadow of the retinal vessels as far as the optic disc. The outline of the shadow of the fovea centralis, which falls upon the most sensitive part of the retina, the yellow spot, is well defined, while the outline of the shadow of the optic disc cannot be distinctly seen, as it falls upon a much less sensitive part of the fundus. The shorter and more rapid the movement of the lens, the sooner the shadows of the retinal vessels and fovea centralis appear, and the more distinctly are they seen.

Dr. Maher claims that this is a simple and easy way of demonstrating:—

First.—That there are no blood-vessels in the fovea centralis.

Second.—That the structures in which the visual impulses originate must be behind the retinal vessels.

Third.—That the fovea centralis differs in structure from the other parts of the retina.—*Med. Record.*—*The Canada Lancet.* April, 1885.

On the Use of Ichthyol in Chronic Articular Rheumatism.—Ichthyol is obtained from a bituminous mineral, combined with the residue of primitive fishes, having the following constitution: carbon, hydrogen, oxygen, 10 per cent of sulphur, and 0·005 per cent of phosphorus. It has the appearance of tar, is of the consistence of vaseline, has a weak alkaline reaction, and has a herbaceous smell. It is partially soluble in water, alcohol, æther, and wholly soluble in alcoholic æther. With water it forms an emulsion, and under all circumstances is miscible with fats, oils, and vaseline.

Unna has recommended the use of ichthyol in diseases of the skin, more especially psoriasis and eczema. It is also beneficial in acute and chronic articular and muscular rheumatism. Also in other affections with pain and itching.

A female, aged 30, was seized with great pain in the joints of the foot accompanied with swelling. Similar symptoms soon followed in the knee, hand, and elbow-joints. After a short remission the swelling returned, and remained constantly in the toes, fingers, and shoulders. Two years later she was totally confined to bed, and cried out on the slightest movement.

On examination at this time, all the joints were much thickened and painful. There was no fever or affection of the heart. The general state continued most miserable in spite of medicinal treatment and baths.

Ichthyol, in combination with sulphate of soda 30 parts, and ung. paraffin, 100 parts, were applied to the joints, and fourteen days later the patient was able to ascend the stairs.

Similar results were obtained in a second case.—*Deutsche Med. Wochenschrift.*

Membranous Croup; Diphtheritic Croup; True Croup.—The April number of *The American Journal of the Medical Sciences* contains an elaborate clinical study of true croup from the pen of Dr. J. Lewis Smith, of New York. He fully considers the etiology, anatomical characters, diagnosis, prognosis, and treatment. Whatever the cause, the anatomical characters, the clinical history, and the required treatment are so nearly identical that attempts to differentiate the disease when produced by other agencies than diphtheria from that due to diphtheria, have proved futile and unsatisfactory in localities where diphtheria occurs, except in a few instances, as, for example, when croup has been manifestly caused by swallowing or inhaling some irritating agent.

Dr. Smith holds that inflammation of the laryngeal and tracheal surface, whatever its cause, whenever it reaches a certain grade of severity, may be attended by the exudation of fibrin and the formation of a pseudo-membrane, but such a result more frequently occurs in the inflammation caused by diphtheria than in that produced by other agencies. In diphtheria a moderate laryngo-tracheitis is attended by the pseudo-membranous formation. Dr. Smith's experience leads him to believe that not more than one in eight cases of croup has recovered by medicinal treatment which began in the first week of diphtheria, and in which the symptoms were so pronounced as to indicate more or less laryngeal stenosis. The exudation in the first week of diphtheria, or in its active period, occurs so rapidly, and in such large quantity, that no one of the medicinal agents or modes of treatment which physicians commonly prescribe is sufficiently prompt in its action to prevent the formation of the pseudo-membrane to an extent that soon endangers life.

Croup occurring in the second or third week of diphtheria, since it is attended by less abundant and less rapid exudation than when it occurs during the acute stage, can be more successfully treated under the persevering use of solvent inhalations, and a larger proportion than one in eight, perhaps one in three, recovers by the early and continuous or almost continuous use of inhalations.

Still, the mortality is so large, and the suffering so great in croup, at whatever stage of diphtheria it occurs, that we cannot rely on the slow action of medicines or inhalations, and surgical treatment is in most instances required to diminish the suffering, and afford the best chances for saving life.

Under the head of medicinal treatment he strongly recommends trypsine as a solvent of false membrane. Of calomel, he says—The experience of many physicians justifies the belief that mercury, and especially calomel, employed within certain limits in the commencement of a pseudo-membranous inflammation, does exert some controlling action on this disease. That it did much harm formerly when physicians prescribed it as freely as we now employ potassium chlorate, to the extent in many instances of increasing the cachexia and causing mercurialism, should not deter from its judicious use. In the ordinary form of diphtheria he would not advise the use of calomel, or would limit its employment to one or two doses of 6 to 10 grains in the commencement of the disease in robust cases. But in croup, since the danger is not from the cachexia or blood-poisoning so much as from the laryngeal stenosis, which is apt to develop rapidly, that medicine is indicated, and should be prescribed, which most strongly retards the exudative process, and aids in liquefying and removing the pseudo-membrane, provided that it produce no deleterious effect which renders its use inadmissible. Hence it is proper to prescribe calomel in larger doses and for a longer time in the treatment of croup, than in other forms of membranous inflammation, if it fulfil the indication, as it seems to in a measure. In his own practice, however, calomel is not prescribed after the first or second day, since Dr. Smith prefers the use of other remedial measures, which are efficient, and are less likely to produce injurious effects. The subject of surgical treatment is also fully discussed, and Dr. Smith holds that we can claim for tracheotomy judiciously performed, and at a sufficiently early stage, the cure of one in every three patients on the average.

Papayotin in Diphtheria, Croup, and Croupous Membrane.—Prof. M. J. Rossbach, in the *Deutsches Archiv für Klin. Medicin*, reiterates the view expressed by him four years ago concerning the action of papayotin in the above conditions. It is no specific against diphtheria and croup. It cannot cure all cases of diphtheria, especially those which have persisted for a long time, and in which the heart has grown weak; but it is the best means of dissolving the croupous and diphtheritic membranes which we at present possess, and its application, opportunely made, frequently renders tracheotomy superfluous, reduces the mortality incident to these diseases, and by removing the membrane, has a salutary effect upon the attending fever. Prof. Rossbach insists that, if these results are not obtained, an inferior preparation of papayotin has been used. *Medical News.* April, 1885.—A. K. C.

Danger of Injections of Iodine Repeated at Short Intervals in the Treatment of Hydrocele.—M. Tillaux states that six weeks are required before the results of the first injection can be determined. The danger of repeating it before this lies in producing a false membrane, which bleeds on the slightest provocation, and, forming a hæmatocele, may destroy the testicle. Should this accident occur in a young subject, "a drainage tube should be inserted, if decortication is impossible, as a possible means of preserving the testicle, even at the risk of long continued suppuration; but in the old, if it be impossible to remove the false membrane, castration should be performed, and the danger of an open wound obviated.—(*L'Abeille Médicale.*) *Medical News*, March, 1885. —A. K. C.

Notes upon Glycerine.—Of the thousand and one uses to which we may put this article of materia medica the following may be of special interest because of the simple and harmless nature of this substance:—In one drachm doses it acts as a safe emetic for infants and young children, and in combination with syrup of rhubarb prevents the astringent after-effect of this useful remedy. A small quantity vaporised alleviates in a great measure distressing coughs when the vapours are inhaled. In combination with a little tincture of iodine and iodide of potassium it has been prescribed with marked benefit in phthisical complaints. When ferric chloride and other astringent compounds of iron are administered for a long time, the glycerine prevents the iron exerting its powerful astringent action to a great extent; it should, however, be borne in mind that after a time reduction from the ferric to the ferrous state takes place, as was shown about three years ago in a paper read before the Pharmaceutical Conference by Mr. Schacht, of Clifton. In combination with rum and a little flavouring agent, it has been used in place of cod-liver oil. With chloral hydrate, camphor, alcohol, and oil of juniper, as a liniment, it has been used for rheumatism, for which it is well adapted, giving temporary, if not permanent relief, to that kind of rheumatism which can be reached by external applications. Glycerine is said not to be absorbed by the skin, and is therefore recommended as a basis for such powerful medicaments as mercuric chloride for the treatment of such skin diseases as scabies, &c. Equal parts of glycerine and castor oil, when blended well together, form an opaque emulsion-like mixture, which acts as a mild and effectual aperient in one drachm doses. The efficacy of the castor oil is increased, and its disagreeableness masked in no small degree. A mixture of fluid extract of cascara sagrada, tincture of belladonna, tincture of nux vomica, and glycerine, in suitable proportions, forms an admirable combination as a gentle tonic laxative. Glycerine is a powerful solvent and is capable of taking up one-sixth its weight of alum, which combination has been so recently recommended in the Journals as a convenient concentrated astringent solution to be kept at hand. *Birmingham Medical Review.* May, 1885.

A Statistical Review of the Operative Measures Devised for the Relief of Pyloric Stenosis.—But few of the ills to which humanity has fallen heir are attended with more distressing symptoms than those produced by stenosis of the pyloric orifice, from any cause whatever, and in but few has the prognosis been so absolutely hopeless. Until within the past six years the condition was regarded as beyond the domain of surgical interference, and with the diagnosis, "stenosis of the pylorus," the fate of the patient was irrevocably sealed. Internal medicine offers absolutely no hope to the unfortunate sufferer from pyloric stenosis, until Péan, in 1879, performed pylorectomy for the relief of pyloric disease, and ushered in a new era in abdominal surgery.

Dr. Randolph Winslow, of Baltimore, in a scholarly and very able paper, published in *The American Journal of the Medical Sciences* for April, 1885, has collected and analysed all the recorded cases, 85 in number, of operative interference for the relief of pyloric disease. He fully discusses the technique of the different procedures, and presents the following valuable deductions:—

1st. In cancer of stomach not producing stenosis, anodynes should be given in quantities sufficient to relieve distress, and no operation should be performed.

2nd. Pylorectomy for carcinoma is followed by 76 per cent mortality, hence it should only be very exceptionally performed, in those cases where, with marked stenosis, the pylorus is not adherent to the neighbouring organs, and the patient is young and fairly strong.

3rd. In other cases of carcinomatous stenosis, as only very temporary benefit can be obtained, gastro-enterostomy should be performed.

4th. In cicatrical stenosis digital divulsion should be performed, but if this is impossible owing to great thickening of the walls, resection in those who are well nourished, and gastro-enterostomy in the debilitated will both be followed by good results.

5th. Hæmorrhage or perforation from ulcer or other cause than stenosis, does not present indications for pylorectomy.

6th. Duodenostomy, gastrostomy for the passage of a tube, and complete gastrectomy should all be replaced by gastro-enterostomy.

Jaborandi as a Galactagogue.—Dr. C. N. Brook, Quincy, Ill., accidentally discovered the influence of this drug on the mammary secretion, in a patient to whom he had given it as a diaphoretic. Several successful instances of its action as a galactagogue are cited, and he concludes (1) that it has a special stimulating effect upon the mammary secretions; (2) that continued exhibitions of the agent will be followed by functional exhaustion of the mammary gland; and (3) that a functionally exhausted mammary gland may, after an interval of rest, be again stimulated to activity by the proper exhibition of jaborandi.—*Journ. American Med. Assocn.*—A. K. C.

Constitutional Effects of Salicylic Acid by Cutaneous Absorption.—Drs. Randolph and Dixon report good results in rheumatic affections from this method of application. The urine responds to the ferric chloride test for the acid in over an hour after application, and gastric irritation is obviated. The drug is rubbed into a paste with olive oil, and smeared over the affected parts. Occasionally local irritation follows. —*Medical News*, February 1885.—A. K. C.

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ORIGINAL ARTICLES.

DARWIN'S DOCTRINE OF EVOLUTION IN EXPLANATION OF THE COMING INTO BEING OF SOME DISEASES.

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Section III.—*Basis of the Argument for the Doctrine of Evolution as applied to Pathology.*

As a basis of argument in support of the doctrine of evolution as applied to pathology, and for the recognition of a common ancestry in some diseases, I would instance:—Examples of non-specific conditions or ailments developing more specific characters—such as the ordinary stages of a common inflammation—a pimple, a vesicle, a pustule, or a scab, foreshadowing and typifying diseases in which one or other of these lesions (as stages of the disease) predominate, other characters being subordinate.*

Some pathologists have already accepted it as a fact that certain often so-called *morbid poisons*, the contagia of erysipelas, pyæmia, and tuberculosis, are intimately related to the common ferment, or ferments of *putrefaction*; and that the most vehement of these contagia can be developed by the artificial culture of successive transmissions in the living body from the comparatively mild contagium of any *common*

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* *Millican*, p. 107; *Collins*, *loc. cit.*, p. 44.

*inflammatory process.** Professor Sanderson's papers † also show that the occurrence of tubercle (characterised by more or less well marked features) may be derived by cultivation from such a common inflammation as that induced by a chemical irritant. And it therefore "concerns us to remember that apparently every *common inflammatory process* includes more or less of textural changes which are necrotic and of septic tendency." ‡ This doctrine of a common disorder acquiring specific power is not a new one. A class of cases is mentioned by Dr. Charles Creighton, § in which the mere contact of human beings in an average state of health and cleanliness sets up various epidemic disorders among the inhabitants of remote islands where strangers rarely come. Mr. Darwin, in his *Voyage of the "Beagle,"* quotes instances of this in the South Seas, on the excellent authority of Williams the missionary: and it is to typhus that Mr. Darwin compares these cases. "It would almost appear," he says, "as if the effluvium of one set of men shut up some time together was poisonous when inhaled by others, and possibly more so if the men be of different races." Sir Thomas Watson has also maintained the same doctrine, and relates the following facts:—

"The English troops that served in Egypt in 1801, under Sir Ralph Abercromby, suffered much from the ophthalmia of that country, which is always brought on by exposure to cold after being heated, by the glare of the white and parched ground, by the dust in the air, and such like causes peculiar to the climate of Lower Egypt. No one, in those days, thought that Egyptian ophthalmia was a specific infection. But some of the English soldiers returned with it uncured, and it soon became contagious in the home garrisons; and it was found, after a lapse of eight or nine years, that there were no fewer than 2,317 soldiers pensioners upon the public bounty from blindness in consequence of ophthalmia. Those who knew the disease as it occurs in Egypt denied that it was contagious, and those who saw it in England were as positive that it was contagious. Watson reconciles the two views. He says that 'there is nothing absurd nor unlikely in the supposition that diseases may first arise from some other source, and then become capable of spreading by contagion;' and he says elsewhere, 'My own creed upon the matter is this—that the disease may, and often does arise, independently of contagion, from the agency of ordinary causes of inflammation; and that, *having so originated, it acquires contagious properties, which develop themselves only under circumstances that favour the propagation of most of the contagious complaints.*' A parallel to the Egyptian ophthalmia of 1801 may be found in certain cases of syphilis described by Baron Larrey in his surgical history of the same campaign. The Alexandrian syphilis, which the French troops contracted freely, was peculiarly free from 'grave symptoms' and 'easily cured;' but it proved very 'obstinate and difficult to destroy' in those who brought it back with them to France."

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* Simon, Art. "Contagion." Quain's *Diction. of Medicine*, vol. i, p. 292.

† See successive yearly volumes of *Reports of the Medical Officers of the Privy Council for 1868 to 1877.*

‡ Holme's *System of Surgery.* First edition. Art. "Inflammation." Quoted by Simon.

§ "Address on Pathology." *B. M. Journal*, 4th August, 1883.

A similar doctrine was also held "by the thoughtful and talented writers who were known in Germany fifty years ago as *The Natural History School.* And in anything that concerns the natural history of disease we may go direct to Sydenham, who was the author of the phrase; and in Sydenham we shall find a very explicit statement of the doctrine. In the language of the humoral pathology of his day he says, 'The humours may, under certain circumstances, be raised to the dignity of a substantial form or to a species—a specific disease being one that takes its rise in the specific exaltation, or specification of some juice of the body; and he expressly mentions the antecedent condition of the humour before it had put on its species—*antequam hanc induat speciem.*'" Hence Dr. Creighton concludes that this doctrine of a common disorder acquiring specific properties has not been absent from the thoughts of those who lived in the philosophical period of medicine.

Another interesting illustration of this doctrine is to be found in the possible and probable evolutions of small-pox, regarded as a skin disease which has acquired in course of time an independent and infective existence—"an ill-smelling condition of the human skin which one person may impart to another—one which "has been reproduced with the greatest accuracy and fidelity in millions of copies for hundreds of years; and the extraordinary closeness of its mimicry has given rise to the opinion that the disease is really the uniform effect of some unknown poison. But the anatomical structure and evolution of the pock Dr. Creighton considers to be too elaborate to be the simple and direct effect of an extrinsic poison; it is not like a flea-bite, or like the nettle-rash which comes out in some peculiarly constituted person after eating shell-fish. The pock is a complicated affair, and there is a history written in it, a history of character acquired bit by bit, as in the evolution of living things, a history which has been transacted within the body; and the stages of this history are run through with more or less completeness in every case of the communicated disease. The papules had developed fluid in their summits, they had grown in a peculiar way, spreading in breadth, the original centre had become a distinct depression; and in the course of this evolution certain partitions had been formed in the interior of the pock. Further, the pock is more deeply rooted in the skin than most skin diseases known to us; for its base goes down to the vascular layer of the corium, and, when it scabs it, leaves a considerable defect of substance—a peculiarity among skin diseases which can hardly be matched unless it be in some of the tropical forms of impetigo. This skin disease is ushered in by much constitutional disturbance or fever; and, as in some other skin diseases *which are not contagious*, the fever abates when the eruption has come out, and the subsequent constitutional disturbance is exactly in proportion to the number of the pocks."

It is remarkable that all this complicity of anatomical structure, of stages of evolution, and of characteristic fever, should have preserved its unity and individuality through so many transmissions, in all sorts and conditions of men, and in all parts of the world.

The disease possesses now an independent existence in a high degree; and Dr. Creighton proceeds to inquire into its history previous to the acquisition of this independent existence. He shows, on the authority of Professor Hirsch,* that we must go to tropical countries—to Hindostan, and to the interior of Africa—for its original seats, and that we must go back to a very remote antiquity to find the beginning of it. Small-pox is peculiarly an African disease (Lichtenstein, *Pruner*); and was originally a disease of the black skin; "and it is in keeping with that historical and geographical induction to find that the black skinned races are by far the most susceptible of the disease nowadays, when it is set up only by contagion."

In speculating on the rise and development of small-pox out of some common and frequent disorder of the black skin, under such influences as tropical heat and moisture, or under the peculiar conditions of life accommodation for the living, which obtain among the swarming populations of tropical countries, "one naturally thinks of a complex form of *febrile lichen*—a skin disease which Dr. Gregory admits *that he could not always diagnose from small-pox;* and if we imagine a widely prevalent kind of febrile lichen to follow somewhat the same development that Willan describes in a remarkable case of *lichen agrius,* we should have a not very remote analogy for a stage of existence to small-pox, both in its structural character and in that constitutional fever, before it became the independent and infective disease that we see it now to be. We are at least justified in thinking of some form of tropical skin disease, widely spread within a certain zone, very apt to recur in the individual, and with each recurrence to become more inveterate, and to develop a more complex structure. Given a number of people suffering from such a cutaneous disorder at one time, and some great invasion or migration, and we shall probably have the circumstances under which the skin disease would become communicable, would pass by contagion to the skins of those who had never incurred the disease by natural causes, and pass all the more easily to them if they belonged to an entirely different race, or presented the ordinary contrasts of civilisation and barbarism, of white skin and black."

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* *Hand-book of Geographical and Historical Pathology.*

The acquisition of this independent and contagious existence was probably a very gradual process of evolution; and, comparing it with the original disease, out of which it must have come into being, the following facts are worthy of note:— 1. The contagious small-pox generally occurs but once in a person's life; and in this it offers a remarkable contrast to inflammations, which, having happened once, are, for that very reason, more apt to happen again. Hence the impropriety of ranking small-pox under the head of cutaneous diseases; it would "more rightly be called a blood disease" (Sir Thomas Watson). But, as Dr. Creighton proceeds to show, there need be no antagonism between the view of small-pox as a cutaneous disease, and the view of it as an infection. Small-pox in its primitive stage, before it became the independent disease it is now, "would be precisely that kind of skin disease which, having happened once, is, for that very reason, more apt to happen again. It would recur in the same spots, as in the early stages of leprosy, and it would become more rooted and more inveterate each time it came back. The inveteracy of this morbid condition of the skin, due in part to neglect, would be its first step towards acquiring that remarkable power of semi-independence within the body which it has now acquired; and it is this acquired power that now enables it to pass to another person's skin as an individual state of the body, which can be, as it were, abstracted. Its individuality is also proved by the best of all tests of what constitutes an individual—the test of parentage; for the skin disease that springs up in the contaminated body is exactly like the skin disease which must have been originally acquired. But the infected or impregnated body runs through all the stages of the malady—papule, vesicle, pustule, scabbing and scarring—in rapid succession in two or three weeks; and thenceforward it is done with that particular form of disease for ever. In this independent form of disease we have a brief abstract and chronicle of the whole protracted development or evolution of small-pox. It sums up its past; and just as it sums up its past, so it anticipates its future; and starting, therefore, from a non-specific inflammation or common fever, or from such an anomalous enteric fever as Sir Joseph Fayrer has described as occurring in India, may there not arise, under favourable conditions, an inflammation or a fever different from the parent stock and capable of reproducing itself, or of being reproduced when the originating factors are again concurrent? The same argument may apply to cholera, and to the varied forms of enteric fever, such as are alleged to occur in tropical climates.

Concurrently with epidemics of cholera in India, Sir Joseph Fayrer has also described a peculiar fever co-existent with such epidemics which may be similarly used in argument.

May we not therefore consider many typical and so-called specific diseases at present well known as having arisen first in a non-specific inflammation, or in a common fever, thereby recognising a common ancestry among certain well known diseases, now recognised as distinct from each other, and so far new?

Slight variations, moreover, are also being introduced in nature with every successive generation of existences. Many of these variations are transmitted to the generations which follow; and, therefore, in the course of time, from any one parent stock would descend a very large variety of kinds, and with them we should expect to find variation in diseases—constitutional, hereditary, infective and contagious.

But the true settlement of these and such like questions at issue can only be obtained when long and patient study shall have determined under what laws and within what limits the slightest variations and anomalies which characterise individual diseases have been brought about; and it is mainly in the philosophy which pertains to and characterises the Darwinian hypothesis, that we may look for aid in the elucidation of the question. St. George Mivart, in a series of interesting papers on "Organic Nature's Riddle," published in the *Fortnightly Review* for March and April, 1885, shows that many influences *must* come into play in the origin of new species; and his argument is applicable alike to organic nature and to diseases. One most important influence is "*heredity*."* It is a property of parental origin. It is the innate tendency which each organism possesses to reproduce its like. Another influence is the action of the environment upon nascent organisms. He further adduces evidence to show that certain variations are more apt to be inherited than others—*e.g.*, skin affections, affections of the nervous system, and of the generative organs—that modifications result from the action of unusual agencies on the embyro; and that processes of repair take place the more readily the younger the age of the subject; and it is probable that the action of the environment generally acts more promptly and intensely on the embyro than on the older young—so that the same organism will sometimes assume very different forms—*e.g.*, the *bacterium rufescens* as observed by Professor Ray Lankester.

The effect of changed conditions is also often very striking—such changes telling strongly in favour of the existence in living beings of certain positive inborn tendencies to change in definite directions under special conditions. It is also obvious that the very same influences (*e.g.*, amounts of light, heat, moisture, and so on) will produce different effects in different species—also that the nature of some species is more stubborn and less prone to variation than that of others: so that both the amount and the kind of variability differ in different races; and such constitution, capacities or incapacities, tend to be inherited by their derivative forms; and so every kind of animal must have its own inherent powers of modification or resistance—so that no organism or race of organisms can vary in an absolutely indefinite manner; and, that being so *unlimited*, variability must be a thing absolutely impossible.†

So also Dr. Wilks writes in his address to the British Medical Association that "Hereditary tendencies have much to do with the physical and mental characters of individuals; and that temperaments and idiosyncrasies so evolved are most important factors in the production of our ailments. Also, that our surroundings are in themselves sufficient to produce active disease—*e.g.*, a number of conditions tend to the prevalence of the gouty constitution in England, and this may be carried through several generations, while the same conditions operating on an individual predisposed, may actually induce an attack in him. Bright's disease and many other diseases come about through the deleterious operations of our ordinary surroundings, both in the air we breathe and in the food we eat, and not from any well defined specific cause. Nearly all disease is slow in origin and progress, as in the words of Hippocrates, the father of medicine, who wrote that, 'Diseases do not fall upon men instantaneously, but being collected by slow degrees, they explode with accumulated force;' and it must still be the great aim of the physician to seek the causes of disease in our ordinary surroundings, and in the tendencies transmitted to us, and to try to remove them."

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* See also Roberts' definition in *British Medical Journal*, 1st August, 1885.

† *British Medical Journal*, 1st August, 1885.

Variation must therefore be regarded as the result of the reaction of the special hereditary nature of each organism upon the stimuli of all the multitudinous agencies which environ it—a combination of "heredity" and "external influences" must be recognised as factors in the process of variation.

And, in addition to the action of these factors, there comes another to be reckoned with—namely, "a peculiar kind of action due to an internal force—an intra-organic activity," the laws of which have yet to be investigated. Comparative anatomy, pathology, and teratology combine to point out the action of this internal force.

Altogether, therefore, it seem undeniable that the characters and variations of species and of diseases are due to the combined action of internal and external agencies, acting in a more or less direct positive and constructive manner, suggestive of an "intelligent purpose, which is as it were incarnate in the living world."

Section IV.—*The Doctrine of Evolution not a new one in Pathology.*

The idea involved in the application of "the Theory of Evolution" to "the coming into being" of some diseases is not a new one. It has been floating about, as it were, in men's minds without having been thus definitely formulated long before the time of Darwin.

We have various evidences of this. For example, a work published in France about 1784, written in Latin, has the following title:—*De Præcipuis Morborum Mutationibus et Conversionibus, Tentamen Medicum,* by A. C. Lorry, a distinguished graduate of Paris, embodies this idea. This work was published after the death of its author, and was edited by his nephew, the celebrated Hallé. The subject had been again suggested to Dr. Lorry by a small duodecimo volume printed at Frankfort in 1646, which has the quaint title—*Quæ ex quibus,* written by one Rodericus à Castro.*

Again, about 1792, Dr. John Ferriar, Physician to the Manchester Infirmary, published a series of *Medical Histories and Reflections* in 4 vols., and a second edition in 1810, in which two of the essays therein published have the following noteworthy titles—namely, "The Origin of Contagious and New Diseases," in vol. i, p. 261, and "The Conversion of Diseases," page 17, vol. iv. During the earlier and middle part of the present century we have also some foreshadowings of Darwin's teachings as applicable to diseases in the discussions which took place relative to "the changes of type in diseases and their tendencies to change." The type or form of disease being made evident in the order of succession observed to obtain among certain morbid phenomena, it was noticed that such types admitted of modifications from various causes (Copland).

It was also early recognised that the hereditary or natural constitution of the individual was an important element in determining and modifying the type of a disease; also that town life, as compared with country life, was another factor in modifying the type of many diseases; and the particular occupations of individuals furnished still other modifying factors. The characters of epidemics, especially of fevers, were noticed to differ. Typhus fever, for example, since 1843 to 1848, is known to have diminished in its relative mortality; its eruption has appeared earlier, and so also has its critical day (10th to 14th day as a rule, and rarely now prolonged into the 3rd week) in itself a great cause of diminished mortality, for a day's delay of the crisis in a case of any degree of severity is an immense addition to the risk.†

It was also noted that diseases have arisen which are more or less new, resulting from new combinations of various pathological phenomena. It had been further observed how, in this country, during the past and previous centuries, some epidemics of fever, dysentery, scorbutus, malaria, and influenza, greatly deteriorated the health of the population; and as we have gradually got rid of such severe epidemics, severe and unmanageable types of ordinary inflammatory fevers have become less common. It is also on record that the types of some diseases become modified by complication or combination with other diseases more widely spread; and the doctrine of incompatibility of two or more zymotic diseases concurring in the same subject was shown to be an error. One form of disease has been seen to complicate or overlay another in a manner that at one time was not thought of. On this subject an admirable paper was contributed by the late Dr. Charles Murchison in the *Med. Ch. Review* for July 1859, in which he described the co-existence of variola and scarlatina, of variola and rubeola; so that the co-existence of several of the so-called acute specific diseases have now been clearly shown; and even Pringle, a famous pioneer of military medicine, records how typhus fever and marsh fever occur together; and that bilious remittents have prevailed with small-pox in the West Indies, forming, as a veteran outspoken physician remarked, "the most infernal combination that ever affected the human frame." Moreover, it was held by a distinguished Edinburgh physician, Dr. Craigie, in the earlier decades of this century, that "it is quite possible for the same person to generate two distinct diseases,"* as, for example, malaria, inducing in some an ague, and in others a dysentery. He further makes the observation—an important one for the theory of evolution—that every case of *synochus,* or the ordinary continued fever of this country, commences with the symptoms of simple inflammatory fever; and it is not improbable that *synocha* passes, in certain constitutions and in particular seasons, into *synochus* by insensible shades.†

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* *Edin. Med. and Surg. Journal,* 1801, vol. iv, p. 331.

† Professor W. T. Gairdner, *Clin. Med.,* 1862, p. 156.

Further, it has been noticed that as we approach certain well marked geographical regions of the earth, where characteristic types of disease prevail, the confines of these disease realms are found to mingle their types together, so that the diseases of one region merge into, and participate in, many of the characters peculiar to the other. Cholera has now extended and continues to extend its sphere much more widely over the earth than heretofore; fevers have been seen to change their type; and epidemics of all kinds to assume new characters as to their beginnings, their course, and their tendencies to fatal or favourable endings; and, as the late Sir Thomas Watson eloquently expresses the idea, in one of his lectures, "there are certainly waves of time, through which varied characters and types of disease prevail in succession."*

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* *Prac. Physic.*, vol. i, p. 439.

† *Loc. cit.*, vol. i, p. 286.

The "alliances of diseases" constitute another element in the history of this subject, as illustrated especially by the late Dr. Barclay, of St. George's Hospital, London.

Again, in 1839, Dr. (afterwards Sir Henry) Holland, F.R.S., published a collection of *Medical Notes and Reflections*, which contain many interesting records bearing upon this question, notably the following chapters:—Chap. II, "On Hereditary Diseases;" Chap. IV, "On the Connection of Certain Diseases;" Chap. XIV, "On Epidemic Influenzas;" Chap. XXIV, "On Diseases commonly occurring but once in Life;" Chap. XXVII, "On the Influence of Weather in Relation to Disease."

He especially notices examples of the revival of hereditary diseases, absent in one or more generations, and instances several children of the same parents being affected in common with a given malady, of which there were no prior examples in either family; and he remarks that "the extent and sudden development of disease in these instances may in itself be taken as a proof of *new elements* being introduced" (p. 36).

He is also of opinion that "numerous conditions will be found, capable of giving different aspects to the effects of *a* common cause of disease;" † and he further notices "the variety of anomalous symptoms which arise from scarlet fever imperfectly developed, and from erysipelas,‡ and how too exclusive attention may be given to the eruptive part of certain maladies because of a belief in the more ready diagnosis it seems to afford."

He notices further that "scarlet fever" has peculiar relations of its own, and is subject to greater irregularities than either measles or small-pox; that it appears more frequently in "incomplete forms;" that it seemingly blends itself more readily with other diseases; and when it prevails as an epidemic amongst children, we find many disorders prevailing which strongly warrant the suspicion of their being derived from the same source, yet so incomplete and irregular in aspect that it is impossible to define them as really forming part of the malady.§ This, he observes, is particularly the case with regard to the forms of cynanche which attend the fever, and which occasionally appears as the only distinct evidence of constitutional disorder. Another class of deviations is in the irregular character and progress of the fever; incompleteness in some part of the development of the disease; and its recrudescence some time afterwards without fresh infection, sometimes more regular in type than in the first occurrence;* or, cases where there has been an irregular or incomplete evolution of the disease, succeeded by a number of abnormal symptoms deviating greatly from those wanting to make up the natural type, yet sufficient to afford presumption that they are due to the same morbid condition; these are especially—glandular swellings, abscesses in different parts of the body, eruptions, and gangrene of more or less extensive parts of the integument, and vitiated secretions from the kidneys and bowels. He notices also "the varying liability of the same person at different times to these diseases, and a hereditary tendency to them,"† besides many other similar records of his experience.

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* Aitken, *Sc. and P. of Med.* 6th Ed., vol. i, p. 267, *et. seq.*

† *Loc. cit.*, p. 90.

‡ *Loc. cit.*, p. 103.

§ *Loc. cit.*, p. 405.

In 1852 Dr. S. H. Dickson published, in the *Transactions of the American Medical Association*,‡ a valuable paper "On the Blending and Conversion of Types in Fever."

(*To be continued.*)

CLINICAL OBSERVATIONS ON SYPHILIS OF THE EAR AND THROAT.

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It is not my intention to enter fully into the subject of syphilis as it affects the ear and throat—which indeed would require a small volume. My object is rather, without referring in detail to all the existing literature of the subject, to bring forward the results of personal experience—and that as shortly as possible.

Syphilis of the Ear.

1. *The external ear.*—I have, of course, like other authors, seen cases of gummatous ulceration of the auricle which may or may not encroach upon the meatus. Primary sores in the

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* *Loc. cit.*, p. 406.

† Holland, *loc. cit.*, p. 490, 410.

‡ Vol. v, p. 127.

neighbourhood of the ear, condylomata, and ulcers confined to the meatus, I have not so far encountered. On the other hand, I have met with scaly syphilitic—or what I believe to have been syphilitic—eruptions in the meatus. I say believed to be syphilitic advisedly, because although the cases had a well marked specific history, there was no opportunity of following out the further progress of the disease.

2. *The middle ear and labyrinth.*—So far as my experience goes, suppurative otitis media may occur in syphilitic persons as in others, but presents no signs or symptoms by which it can be diagnosed. It goes without saying that in a patient whose health is undermined by syphilis, treatment directed to this condition should accompany local medication, but this is simply in accord with the general maxim that cachectic persons are more likely to suffer serious results from middle ear suppuration than the healthy and robust.

Again, in syphilitic patients who are suffering from inflammatory affections of the naso-pharynx we may meet with a simple catarrhal otitis media which has nothing in its course or symptoms to distinguish it from a non-specific affection. Further, it sometimes happens that the results of cicatrisation render the Eustachian tubes impermeable, or that adhesions between the velum palati and posterior wall of the pharynx cause defective ventilation of the middle ear; yet in these cases we are hardly justified in speaking of the ear lesion as specific, because the organ of hearing, *per se,* is not affected by syphilitic disease.

There is, however, a class of cases, or more accurately, there are several varieties of ear affection, which, if not quite pathognomonic, are, at all events, strong presumptive evidence of a syphilitic taint.

(1.) The first of these I had always regarded as an affection of the middle ear alone, but am now not quite so decided in my view. The leading symptom is rapid onset of deafness, with or without tinnitus, and usually without pain. The condition is commonly unilateral, and the tuning fork is heard better by bone-conduction in the deaf or worse ear. Forcing air into the middle ear is, however, followed by no improvement. The tympanic membrane may be unaltered or thickened, but its appearance in these cases is not such as to be inconsistent with the presence of perfect hearing power. Those who are conversant with otology will at once recognise from this short description the condition usually found in chronic non-suppurative middle ear inflammation, in which there has never been obstruction of the Eustachian tube, or in which the last named condition has passed away leaving fibrous thickening within the tympanum. Most aurists will, however, agree with me when I say that under ordinary circumstances, and with few exceptions, this state of matters takes years to produce marked deafness. In syphilis, however, the last named symptom comes on more or less suddenly, and in this fact lies the clue to diagnosis. I do not say that deafness coming on as indicated is pathognomonic of syphilis, but I always consider it as strong presumptive evidence.

I have stated that I had always regarded such cases as due to affection of the middle ear alone, because the tuning fork test pointed to a healthy condition of the sound perceiving apparatus. So long, too, as only isolated cases had been reported of retained bone-conduction and diseased cochlea, as discovered on autopsy, I still felt inclined to regard examples of the affection just discussed as depending solely upon an affection of the tympanic structures. Of late, however, evidence has been accumulating to show that bone-conduction may be retained in the presence of gross lesions within the internal ear. This view was first, I believe, advanced by Lucæ in 1864, and is again referred to by him in a paper published in 1870.* In the same journal (vol. xviii) is to be found the full clinical history of a case observed by Christinneck and Schwartze in which, notwithstanding complete exfoliation of the right cochlea, the patient continued to hear the tuning fork (C) louder in the affected ear by bone-conduction. Recently Jacobson † has described a similar example in which, in spite of suppurative disorganisation of the cochlea, bone-conduction was retained until just before death. In a case recorded by myself, the same observation was made, but inasmuch as bone-conduction was tested for the last time 3 days before death, the observation loses much of its value; indeed, at the time, I was inclined to assume that the disorganisation occurred between the periods of examination and death.‡ As matters now stand, I think we must accept the view of Schwartze, expressed in his recent work §—"This (*i. e.*, better hearing of the tuning fork by bone-conduction in the deaf or deafer ear) excludes complete paralysis of the auditory nerve, but does not prove the labyrinth to be intact."

As I have so far stated the facts, they are difficult to explain, but a possible solution suggests itself in mechanical stimulation of the auditory nerve in its passage through the temporal bone by the vibrating osseous molecules; for probably stimulation of the auditory trunk gives rise to the sensation of sound just as stimulation of the optic causes an impression of light. This view is, however, rendered difficult of acceptance by an observation made by Jacobson;* for he states that not only did the patient, who was very intelligent, hear the tuning fork (C) only in the affected ear, but she sang the note correctly when requested. An interesting field for physiological speculation lies open before us, but to pursue the matter further here would be unwarrantable digression.

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* *Archiv. für Ohrenheilkunde*, vol. v.

† *Ibid.*, vol. xxi.

‡ See *Journal of Anatomy and Physiology*, vol. xiv.

§ *Die Chirurgischen Krankheiten des Ohres*, Stuttgart, 1884.

I shall now notice briefly two cases which have come under my observation, in which I suspect that the lesion may have been in the internal ear, although the tuning fork test pointed only to the sound conducting parts.

Of the first case I have very brief notes, but the facts were shortly as follows:—A gentleman plunged into a river to bathe, after which one ear became rapidly deaf without the occurrence of either pain or suppuration. The tuning fork applied to the bones of the skull was, however, better heard in the affected ear, although the impairment of hearing was very marked—more so, indeed, than one usually finds to be the case from middle ear disease alone. In this instance the specific history was very clear, but I regret that I have not noted the period (after infection) at which deafness occurred.

Mr. L., aged 55, consulted me for deafness. He requires a raised voice near the ear. The tuning fork is heard better from the mastoid than before the auditory passages.

The left ear formerly suppurated, and examination shows marked cicatricial deformity of the drum membrane. The deafness in the right ear, of which the membrana tympani is only thickened and slightly indrawn, has the following history:—The patient, who acquired syphilis at 21, had earache about 33 years ago on that side. He became deaf, and the hearing returned suddenly with a crack. After this he bathed in the sea, came out deaf, and has continued so ever since. Inflation of the right ear produces no improvement, and rhinoscopic examination reveals the absence of post nasal catarrh. The patient cannot even hear well through a conversation tube connected with the right ear. He thinks that he hears better on that side in a noise, and also remembers having been giddy, but not when this symptom was present.

Perhaps the most striking point in connection with these two examples is the fact that in both the exciting cause of the deafness seems to have been bathing. While we are yet in the dark as to the exact seat of the pathological lesion in these and similar cases, it seems almost rash to speculate as to the possible connection between chilling of the surface and the onset of deafness. If the pathological condition be of the nature of an adhesive intra-tympanic inflammation, rapid, but painless in its course, then I cannot see that any possible connection is to be found. Formerly, as before said, I accepted the view expressed by Roosa, and even now, while criticising, I do not wish absolutely to reject it; "yet we may say, in general, that a syphilitic diathesis seems to cause the proliferation of tissue to be more rapid and less amenable to treatment. Schwartze believes that the pathological change in these syphilitic cases is a periostitis, and this view seems to be correct."* My objection to this explanation as satisfactory for cases like those just described, is founded principally on the clinical history. In the examples of the affection referred to, and in other similar cases, of which I have seen not a few, we are told of sudden deafness sometimes associated with tinnitus, but never is mention made of pain in the ear as immediately associated with the onset of deafness. We cannot easily escape from the difficulty thus raised; for, on the one hand, syphilitic periostitis is a painful affection, and on the other, the tympanic cavity is one of the most sensitive areas of the body. Again, if the lesion be in the tympanum, and yet not of the nature of a periostitis, what can it be? Not a catarrh, one would think, otherwise it would be more amenable to treatment; and even if the periostitic theory were correct, one would expect some effect from the internal administration of the iodides in most cases, while clinical experience teaches us that this form of syphilitic deafness is most intractable. By a process of exclusion, then, one is almost compelled to seek the cause even of the chain of symptoms we have described, which long cherished tradition connects so intimately with affection of the middle as opposed to the internal ear, in the cochlea. If we are prepared to do this, the explanation of bathing as an exciting cause is not so difficult, for chilling of the surface congests the internal organs, and so predisposes to effusion of blood or serum. I have purposely excluded the semi-circular canals, because in this particular form of specific ear affection giddiness is not commonly met with, although the following case is an exception:—

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* *Op. cit.*

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* Roosa, *Diseases of the Ear*, p. 376; 6th ed.

M., æt. 45, had syphilitic disease when young; 18 months ago patient had a severe cold in the head, then an attack of giddiness, followed by vomiting. Since this time the right ear has been deafer (it was always a little deaf), while there has been much tinnitus. H. D. R. $\frac{\text{not even pressed,}}{30}$: L., normal; right membrane slightly indrawn. Tuning fork heard better in right ear by bone-conduction. The use of Politzer's bag produces slight temporary improvement in the right ear, but has no effect on the tinnitus.

The prognosis is generally bad, but so far as opportunities of observing the condition have been afforded me, they point to the affection as being commonly unilateral, and remaining so. In this, however, I speak with reserve, because dogmatism is impossible on a point like this, and each observer can but speak from individual experience.

Treatment is usually of no avail. In one case, however—that of a young medical man—I have reason to believe a more or less complete cure resulted. He consulted me on the first symptoms of deafness, and, writing from memory, I believe that in addition to the signs and symptoms above enumerated, there was some engorgement of the vessels behind the malleus. The specific history was distinct, and I considered the ear affection as so characteristic that I put the question, as to infection, with almost absolute certainty of receiving an affirmative answer. Blistering behind the ear, iodide of potassium internally, and the inflation of iodised steam by means of Valsalva's method, were the means of treatment suggested. I saw no more of the patient until some weeks afterwards, when on meeting him I asked how his hearing was, and received the satisfactory reply, "All right." As he had before been very anxious about it I presume that considerable improvement followed treatment. The disease may occur either as a secondary or tertiary phenomenon.

I cannot conclude the discussion of this form of syphilitic otitis without again stating plainly my belief that, in the present state of our knowledge, we cannot definitely localise the pathological condition which leads to deafness. Perhaps, on the whole, the most probable view is that both the middle ear and labyrinth are involved. So far as I am aware only one dissection bearing upon this point has been made by Moos. According to Roosa, "Moos reported a case of secondary syphilis in which deafness, annoying tinnitus aurium, and osteoscopic pains in the skull were complained of. The hearing was rapidly destroyed. Death. At the autopsy the right external and middle ear were found intact; sclerosis of the petrous portion of the temporal bone; periostitis in the vestibule, and small-celled infiltration of the membranous labyrinth; anchylosis of the stapes to the fenestra ovalis. Trunk of the acusticus unchanged." * It must be noted, however, that we are not informed as to the presence or absence of hearing by bone-conduction.

(2.) The second form of syphilitic otitis to which I desire to refer seems also to be an affection of both labyrinth and middle ear. Here, however, we always have more or less marked changes in the drum membrane. The hearing may be improved by inflation, and the tuning fork is heard better in the good or better ear, while tinnitus may or may not be marked. In 1880 Knapp † recorded some cases of hereditary syphilis, in which there seemed from the symptoms and signs to be a combination of chronic middle ear disease with affection of the labyrinth. In these there was deafness more or less rapid in its onset; and also giddiness, together with other symptoms of so-called Menière's disease. Objective examination showed signs of otitis media, and from the symptoms coincident labyrinthine disease could be diagnosed. While quite agreeing with Knapp as to the common association of otitis media with labyrinthine affection in children who are afflicted with hereditary syphilis, yet I have but seldom met with a distinct history of Menière's symptoms in such cases.

The following are short notes of two cases which seem to me to be fairly typical of heredito-syphilitic deafness:—

Master ———, æt. 9, has been deaf for about 5 years, but has lately been getting worse. Tonsils not large; membranes indrawn. Inflation has not much effect in improving hearing. There is nasal, but not pharyngeal, catarrh.

Miss ———, æt. 7, sister of the above, a similar case. Post cervical glands enlarged; scaly eruption between the fingers; and stunted upper incisors.

Both children seem to have had snuffles in infancy; in both there is glandular enlargement, and neither hears the tuning fork for the proper length of time by bone-conduction. While under observation, the boy showed symptoms of improvement under treatment, which was both constitutional and local; but the further progress of the cases was not observed.

Of course, in this instance, I cannot be absolutely certain of the specific nature of the affection, yet I think I was justified

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* *Op. cit.*, p. 612.

† *Zeitschrift für Ohrenheilkunde.* Vol. ix, p. 349.

in my suspicions; neither have I recorded whether there were any miscarriages on the part of the mother. These two cases, I may add, were simply noted at the time, not for publication but for my own information, so that the records are by no means complete. I would not, indeed, feel justified in drawing conclusions from them at all were it not that I have often observed a similar train of symptoms in hereditary syphilis seen in hospital practice, where the disease is less rare than among the better class of patients.

As hereditary specific disease is nothing more nor less than tertiary syphilis, we should in the latter also expect to find similar changes in the auditory apparatus of adults. This I have observed in a considerable number of cases. I shall, however, content myself with giving one or two typical examples:

Mr. F. consulted me in November, 18—. He is between forty and fifty, and many years ago had syphilis. In September, after exposure to cold, he noticed ringing and cracking in the right ear. Before this, the hearing was not extremely acute, but the patient could follow mixed conversation.

H. D., right $\frac{\text{contact}}{30}$, left $\frac{9}{30}$. Tuning fork heard by bone-conduction from the middle line in the left ear. Both membranæ tympani indrawn and thickened. After the Eustachian catheter and inflation H. D., right $\frac{\frac{1}{2}}{30}$, left $\frac{11}{30}$. Both constitutional and local treatment were used, and in April of the next year the H. D. was right $\frac{1}{30}$, left $\frac{11}{30}$, while during treatment the following was the best record: right $\frac{2}{30}$, left $\frac{14}{20}$. In this case there was evidently old standing middle ear catarrh for long, but the sudden greatly increased deafness between the months of September and November coming on with neither acute nor subacute symptoms, together with the results of examination, led me to believe that both the middle ear and cochlea of the right side were involved in the specific process.

Mr. H. consulted me with the following history. He has suffered from ringing in the head for about 9 years. Specific infection occurred 14 years ago. There is much nasal discharge. The patient suffered from headaches about the time when tinnitus first began. H. D. right $\frac{\frac{3}{4}}{30}$, left $\frac{1}{30}$. Tuning fork heard better in the left ear by bone-conduction. I regret that I have no note of the appearance of the drum-membranes, but to the best of my recollection they were thickened but not otherwise abnormal.

Anterior rhinoscopy reveals perforation of the septum, and the patient can pass his finger into the right antrum. The posterior surface of pharynx is covered with inspissated mucopurulent secretion. As a result of treatment by means of iodised steam, iodide of potassium, iron, sprays, &c., the hearing improved in a fortnight to right $\frac{1}{30}$, left $\frac{1\frac{1}{4}}{30}$, but the discomfort in the head remained.

These cases are more or less typical of that form of specific deafness which, in my hands, has proved most amenable to treatment. Although I have never seen a cure, yet in most cases some little amelioration is to be expected. As the condition seems usually to be a tertiary phenomenon, internal medication must include the administration of iodide of potassium, while local treatment may require to be modified by circumstances. In most cases it is desirable to see that the Eustachian tubes are freely pervious, so that the patient can easily perform Valsalva's experiment; afterwards perhaps the most efficient remedy is the inflation of iodized steam used at bed-time.

(3.) The next form of syphilitic ear disease attacks the labyrinth or auditory nerve, and may apparently come on at any period after infection. One or both ears may be affected and the deafness is usually absolute. The tuning fork is only heard by bone-conduction in the healthy ear, or, if both be involved, not at all.

Sometimes the history of the case corresponds exactly to that of typical Menière's disease. Thus, there is sudden deafness accompanied in its onset by tinnitus, giddiness, sickness, &c. In such cases we must make use of collateral signs and symptoms to decide whether the condition be due to a lesion affecting the internal ear, the auditory nerve, or brain. My own belief is that most of these cases are due to marked organic changes in the cochlea, canals, or filaments of the auditory nerve on their way through the petrous bone, because they so rarely prove amenable to treatment.

If this view be correct, the hopeless nature of such affections is explained by the extreme delicacy of the parts involved, which, when once injured, cannot be replaced. Sometimes we meet with cases which we are justified in classing under the term cochlitis, proposed by Roosa, because all the symptoms point only to complete destruction of the cochlear branches of the auditory nerve. In one case which I saw soon after the first occurrence of the deafness and before the primary sore even had fully developed, distressing tinnitus was followed by absolute deafness of one ear in a few days. In this instance the other ear has remained intact for years. So far as my limited experience goes, I believe that the unaffected ear is usually comparatively safe if it remain sound for some months afterwards. This is illustrated by the following short notes of another case :

Mr. ——— got deaf suddenly, without tinnitus, in the right ear, 18 years ago. Deafness is absolute, the vibrating tuning fork being quite inaudible in the affected side by bone-conduction. Hearing in the other ear is good.

In these cases, although the prognosis is bad, treatment should never be neglected both on general and special grounds. Anti-specific treatment has in rare instances been followed by marked benefit, and recently favourable results have been observed to follow the use of subcutaneous injections of pilocarpin ; but my object in this paper is not to discuss treatment, but rather to call attention to the semeiology of syphilitic affections.

THE THROAT.

1. *The Pharynx.*—In discussing syphilis of the throat it would be quite out of place to do more than refer to such well known conditions as mucous patches, or to dwell at length on syphilitic catarrh. The latter is, of course, a very common secondary symptom, and is characterised by the abrupt line of demarcation between the healthy and inflamed mucous membrane, while the epithelium covering the latter may have a bluish opalescent appearance, or even be the seat of mucous patches. The catarrhal process seems to stop quite suddenly a little in front of the uvula and anterior pillars of the fauces. It is perhaps not so generally recognised, however, that pharyngeal catarrh, without ulceration, may occur as a result of tertiary syphilis. I have met with a case—that of a gentleman who contracted venereal disease many years ago—in which pharyngeal catarrh always yields to the internal administration of iodide of potassium. In this instance I may, however, mention that the sharp line of demarcation commonly seen in syphilitic angina does not exist during the attacks.

Circumcribed gummata, not associated with ulceration, are known to occur both on the posterior wall of the pharynx and in the soft palate.* The occurrence of such specific tumours in these parts I have not been able positively to confirm ; but in one case, although a specific history was denied, I was inclined to arrive at the conclusion that I had to deal with a circumscribed gumma of the soft palate by a process of exclusion; the patient unfortunately only visited the Infirmary once.

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* Morell Mackenzie, *Diseases of the Throat and Nose*, vol. i, p. 90.

The occurrence of syphilitic nodes on the vertebral column is, to the best of my knowledge, extremely rare. One such case I have encountered. On inspecting the throat at first nothing abnormal was seen, but slight elevation of the palate showed a projection from the cervical column into the lumen of the pharynx. On palpation this tumour felt of the consistence of bone, and the mucous membrane which covered it was not appreciably altered. Pressure on the vertebræ behind elicited pain, but revealed no irregularity; there was also one spot which was more sensitive when cotton wool wrung out of hot water was applied. The history was afterwards found to point strongly to syphilis, and the beneficial effect of iodide of potassium proved the specific nature of the affection. This condition may be mistaken for strumous disease of the vertebræ, and may also be simulated by the existence of an exostosis in the same situation. The last named condition I once saw, in an otherwise healthy man, associated with an osseous outgrowth on the cranium.

Ulceration of the pharynx may occur to a slight extent from the erosions which may follow mucous patches. When the loss of tissue extends to any depth, however, it is usually due to tertiary disease. In the latter the veil of the palate may be studded with numerous shallow ulcers with irregular, but well defined edges—so-called superficial ulcers. Such ulcers could only be confounded with pharyngeal tubercle; but the general condition of the patient, taken in conjunction with the symptoms, should prevent mistakes.

Tubercular ulceration of the pharynx usually occurs only at a late stage of phthisis, the pain on deglutition is great, while the anæmia of the mucous membrane and the appearance of the ulcerated surfaces are more or less characteristic; the floors of the ulcers, in the only case I have had an opportunity of observing, were covered with secretion up to the level of the adjacent anæmic mucous membrane, while here and there small red granulations appeared. So far as my experience goes, superficial tertiary ulceration is rare, but more common than the tubercular variety.

Unfortunately the common form of syphilitic ulceration is both deep and destructive. The perforated palate, the deep sloughy ulcers, and the often fœtid breath, are too well known to merit further description. The great deformity produced by cicatrisation is also but too common; perhaps the most usual variety of the latter is that resulting from adhesion between the palate and posterior wall of the pharynx. These deep tertiary ulcers are so characteristic that they can hardly be mistaken. Lupus, which sometimes attacks the pharynx, breaks down but slowly, and preserves its nodular character throughout. The practitioner will not, I think, go far wrong if he treats every deep ulcer of the pharynx as specific, for the existence of so-called strumous ulceration is extremely doubtful. In hospital practice children may be met with who suffer from perforating ulcers of the palate, which resist specific treatment; but if such patients were placed in better hygienic conditions, I suspect that more favourable results would be attainable.

When pain or deglutition is complained of, and when inspection of the pharynx and larynx reveals no definite cause, the possible existence of syphilitic ulceration in the naso-pharyngeal space should be borne in mind. Some months since a healthy looking robust man presented himself at my clinic, complaining of great pain on deglutition, which could not be explained by the condition of the pharynx. There was some little catarrh but nothing further; yet the colour of the mucous membrane was not quite of the same shade as that seen in simple catarrhal angina, having a more dusky tint. Besides, the pain was quite out of proportion to the objective appearances. Rhinoscopy was impossible owing to the irritable condition of the throat. As I remarked to some gentlemen who were present, the only lesion I could think of was specific ulceration in the posterior nares. The patient was then questioned, and admitted infection some years before. Iodide of potassium was ordered, and in forty-eight hours all pain had disappeared. Since then I have read a most interesting work by Michel,* in which he refers to specific ulceration in the posterior nares as a not uncommon cause of pain on deglutition. The passage is so interesting that I cannot refrain from translating it:—"As a result of numerous observations I would lay down this law: if an individual really experiences pain on deglutition for several weeks or months, there is present on the palate, tonsils, pharynx (pars oralis or pars nasalis) or larynx, a shallow or deep ulcer, which is rapidly amenable to anti-syphilitic treatment. This rule probably applies in eight out of ten cases."

2. *The Larynx.*—That syphilis, both secondary and tertiary, may attack the larynx is well known. Secondary syphilis most commonly manifests itself in the larynx as a catarrh,

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* *Behandlung der Krankheiten der Mundrachenhöhle und des Kehlkopfes.*

although it has seemed to me to be doubtful whether there may not also be a tertiary variety. The question next arises whether specific catarrh can be distinguished objectively and without considering the condition of other parts, from the non-specific variety. To this question, I think, a negative answer must be given, unless the observer is so sure of his powers as to be able to pronounce definitely on the existence of mucous patches within the larynx. I do not remember having seen a case of this affection, although the occurrence of laryngeal plaques has been established, beyond doubt, by numerous competent laryngologists, and it is far from my intention to dispute the correctness of their views.

While holding the opinion that it is not justifiable to draw definite conclusions from any laryngeal catarrh, unassociated with plaques, yet I think that there is an appearance, sometimes seen on the vocal cords, which should arouse suspicion. If the latter be reddened in some parts and white in others this phenomenon should lead to a careful investigation of the case with a view to eliciting a history of syphilis, which may often be obtained. This is the view held by several well recognised authorities, and I only refer to the fact because some leading text-books omit to mention it, and because, from my own experience, I am inclined to attach some weight to it. In order to show the views of different authorities, the following quotations will suffice:

"(Syphilitic) catarrh is in no way different from the simple variety."*

"As I pointed out long ago, there is nothing characteristic about the congestion of syphilis."†

"The redness is often more limited in its distribution, and it is not so bright."‡

"In looking into the larynx of a patient suffering from secondary syphilis one is struck first by the somewhat—not always, however, well-defined—mottled discoloration." §

Jullien describes a dark red colour of the affected parts as more or less characteristic of syphilitic laryngitis, and then goes on to say, "what is much more characteristic scattered here and there small patches like roseola." ||

Tertiary syphilitic ulceration of the larynx is a much more serious condition than superficial congestion. Such loss of

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* Gottstein, *Die Krankheiten des Kehlkopfes*, p. 230, 1884.

† Morell Mackenzie, *Diseases of the Throat and Nose*, vol. i., 356.

‡ Whistler, *Lectures on Syphilis of the Larynx*, 1879, p. 23.

§ Lennox Browne, *Diseases of the Throat*, p. 208.

|| Jullien, *Maladies Vénériennes*, 1879, p. 744.

tissue is preceded by a stage of infiltration, which, however, rapidly breaks down. I have never been fortunate enough to observe a specific deposit within the larynx before the occurrence of ulceration. The diagnosis of tertiary laryngeal syphilis is by no means always easy. It has been stated that it is commonly associated with characteristic lesions in the pharynx, but this rule, if rule it be, has, according to my experience, many exceptions. As to the presence of definite and constant pathognomonic characteristics in the ulcers themselves, I have never been able to satisfy myself. Indeed, the clinical diagnosis rests upon (1), coincident evidence of syphilis elsewhere; (2), a process of exclusion; (3), the effects of specific treatment. I shall not refer further to those characteristics which are supposed to belong to the syphilitic ulcer as opposed to other varieties, but take up the first two points more in detail; the third of course requires no further remarks. Coincident evidence of syphilis elsewhere is by no means always obtainable, especially in the case of females in an out-patient clinic. Tertiary syphilis of the throat is, however, often accompanied by enlargement of the lymphatic chain behind the sterno-mastoid. Of course, further examination may show the presence of nodes or cicatrices. The history, too, may throw considerable light on the nature of the case; but I have found that the existence of a rash is usually denied in that class of patients who come for advice, and while knowing the nature of their ailment, with curious perversity, use every effort to prevent a correct diagnosis. Again, it almost seems as if the poison sometimes expends its whole energy on the pharynx or larynx, leaving no trace in other parts.

Diagnosis by a process of exclusion is probably the best means of arriving at the cause of deep laryngeal ulceration. The latter may be due to tubercle, cancer, lupus, leprosy, glanders, and typhoid.

Tubercular ulceration is usually associated with pulmonary phthisis, the swollen parts of the larynx are pale and the arytenoids tend to assume a pyriform shape. If ulcers be small and numerous they are usually tubercular, but it is unnecessary here to enter into further details. Sometimes the differential diagnosis between a syphilitic and phthisical ulcer is very difficult, as illustrated by the following case:

A patient consulted me for troublesome cough, and on laryngoscopic examination a small papillary excrescence was seen on the inter-arytenoid fold; this, on placing the mirror horizontally, was found to be the upper margin of a deep ulcer.

There was a distinct history of infection some years before, and at the time of examination the limbs and trunk were affected with a papular syphilide. Examination of the chest showed dullness at one apex, while the breath sounds over the corresponding area were bronchial; but the patient was well nourished. The ulcer resisted specific treatment, but so did the skin affection. Unfortunately I cannot record the further progress of the case, but I have never been able to make up my mind as to whether the condition was to be looked upon as syphilitic tubercular or a hybrid. Gottstein* records a case almost similar to this, which, after repeatedly resisting antisyphilitic treatment, was eventually cured by a course of mercurial inunction.

Cancer is also very difficult to distinguish from tertiary syphilis, and although the tumour ulcerates more slowly, this affords little aid to diagnosis, unless the case be seen at an early stage. Pain shooting up towards the ears is common in cancer and rare in syphilis, especially if the epiglottis be unaffected. The fact, however, remains that in most cases it is safer to try the effect of iodide of potassium upon the objective appearances, remembering that even in malignant disease this drug may relieve pain—probably by diminishing the force of the circulation.

Lupus of the larynx is almost, without exception (one or two such cases have been recorded), associated with a similar condition of the face or other parts. The only example of this affection which I have met with was one in which the disease of the face had cicatrised, and the difficulty was to be sure that the cicatrisation did not result from tertiary ulceration. This point was, however, kindly decided for me by my colleague in charge of the skin department of the Royal Infirmary—Dr. Jamieson. The patient was a young woman, æt. 23, and the objective appearances were as follows:—Epiglottis much thickened and ulcerated at the margins, vocal cords red, the left distinctly thickened, small papillary growths in the inter-arytenoid commissure. This girl had been hoarse for three years, while the affection of the face was active five years before I examined her, thus illustrating the rule that lupus of the larynx (as of other parts) is a disease of puberty; while tertiary syphilis is commoner at a later period. The nodular elevations, too, in lupus, taken together with other facts, aid in establishing a diagnosis.

Typhoid fever, as a possible cause of ulceration, has only to be borne in mind to avoid mistakes, and the same applies to glanders.

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* *Op. cit.*, 220.

Leprosy of the larynx occasionally causes ulceration, but is then always associated with other unmistakable evidences of the disease. In the only example of laryngeal leprosy I have had an opportunity of observing, there was merely a smooth tense appearance of the thickened epiglottis and cords. The appearance of the epiglottis, in which the pathological condition was most marked, was as if the part were infiltrated with a smooth yellowish deposit, the colour being paler than in inflammation, and more pink than in œdema.

Syphilitic ulcers of the larynx, after healing, are apt to produce stenosis, causing as they do abnormal adhesions, displacements, and the like. As a general rule, if marked cicatricial deformity of the larynx be found, and if wounds, typhoid ulcerations, glanders, and Stoerk's blenorrhœa can be excluded, then we have to deal with the results of tertiary syphilis. A web connecting the anterior margins of the cords may however exist without owing its origin to syphilis. The etiology of this condition is often obscure, and, according to Poore,* it may be congenital. In a patient sent to me for examination, there was no other evidence of syphilis, and the striking feature of the case was the entire absence of cicatricial changes in the remainder of the larynx, the only abnormality being the presence of a delicate web connecting the cords at the anterior commissure. I have called attention to this point because grave injustice may be inflicted on patients by ascribing such a condition to syphilis without further investigation. The formation of membranous connections between the cords is also common in that curious disease known as Stoerk's blenorrhœa of the nose, larynx, and respiratory mucous membrane, which, however, is almost exclusively confined to Galicia, Poland, Wallachia, and Bessarabia.†

HYSTERICAL ISCHURIA, WITH NOTES OF A CASE.

By WILLIAM FREW, M.D.Edin., Galston.

I think it is to Professor Charcot that we are indebted for the above term. He uses it as the title to one of his lectures, which has been translated by the New Sydenham Society (Series 1877), and he uses it, he informs us, to designate

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* *Transactions of the Internat. Med. Congress*, 1881.

† Stoerk, *Krankheiten des Kehlkopfes*, p. 161.

"a rare, an extremely rare, affection, the very existence of which is disputed by most physicians." Although he uses the term in this isolated way, a glance at the lecture shows at once that the affection he so designates is really only one of the many symptoms or features of that hydra-headed disease known as Hysteria. In the introductory part of the lecture, he says that the general attitude of the medical profession towards this particular phase of the disease has been one of incredulity, and that, with the exception of the writings of the late Professor Laycock, of Edinburgh, he can find no reference to it elsewhere in medical literature, or if so, "it receives merely a passing notice by way of reference, and not without an ironical allusion to those observers who have been so simple as to gravely accept this pretended symptom." Charcot's observations, as detailed in the lecture referred to, may be looked upon as thoroughly establishing the genuineness of the disease (or symptom), yet since that time I can discover little reference to it in any of the works to which I have been able to refer. In Neale's *Medical Digest* no reference to it is to be found. In the article on "Hysteria" in Reynold's *System* this particular feature of the disease receives no notice. Hammond, in his article on the subject, says vaguely that "the quantity of urine may be largely in excess or reduced to a minimum." [See Hammond's *Diseases of the Nervous System*, article "Hysteria."] In the *British Medical Journal*, however, for Feb. 24, 1885, I find it recorded that Dr. Hellier of Leeds brought a case before a meeting of the Leeds and West Riding Medico-Chirurgical Society, in which there had been scanty urine for 7 weeks, with complete anuria on 2 occasions for 2 days, and once it was asserted that no urine had been passed for 5 days.

Seeing the exceeding rarity, apparently, of the affection, I thought that the following case, which has been under my notice for some considerable time, and which, before I had read Prof. Charcot's lecture, had given me considerable uneasiness and concern, might be worth recording.

The subject of observation is a married woman, the wife of a coal miner. She is now 34 years of age, and has been married for 17 years. She is the mother of 7 children, 4 of whom are alive. Her father died about middle life, dropsical (cause unknown). Her mother, who is completely blind on account of infantile cataract, is at present the inmate of an asylum. She had one brother who also died dropsical and blind (not from cataract, so that it was probably Bright's disease). She has two brothers alive and well. The patient herself enjoyed good health up to the time of her last confinement in the autumn of 1879. Her mother, who had resided with her till within a short period of the confinement referred to, had for some time been showing signs of mental aberration, which gave the patient a great deal of anxiety. In some of her previous confinements she had had rather troublesome *post-partum* hæmorrhage, but the confinement referred passed off naturally and she appeared to make a good recovery. About 3 months afterwards I was asked to see her on account of leucorrhœa, and on examination discovered an endocervicitis and endometritis. The uterus was enlarged, tender to the touch, and there was some degree of prolapsus. This condition of matters proving very refractory to the usual remedies, local and general, I sent the patient to Glasgow to see Professor Wallace. She remained under his care for a short time and returned somewhat better. This improvement, however, proved only temporary, and although by careful attention she could be kept in a somewhat better condition, the tendency was for the disease to become as bad as at first whenever treatment was relaxed. With the return of menstruation, too, menorrhagia set in, occasionally to an alarming extent, and the necessary abstinence from local treatment at these periods (which recurred frequently and were very prolonged) tended to aggravate the disease. The patient was gradually getting into a nervous and desponding state about her condition, in fact becoming somewhat hysterical. There was also present tympanitic distension of the abdomen, with irregularity of the bowels and ovarian hyperæsthesia. She could hardly be persuaded that the abdominal distension was not a dropsical condition, and was evidently alarmed about it. She solicited to be sent to the Edinburgh Royal Infirmary, where I obtained admission for her to Professor Simpson's ward. She remained under his care for several weeks, but returned very little improved and was soon as bad as ever. Further symptoms also developed. Hysteroid epileptic attacks occurred generally at the menstrual periods, but sometimes when labouring only under mental excitement. These were preceded by intense cephalalgia, insomnia, and high arterial tension. She complained also of dimness of vision, and latterly, on a particular day, about 2½ years ago, of having passed no urine for 2 days and of inability to do so. On examination of the abdomen, it was apparent that there was no great distension of the bladder, and being very loth to begin the use of the catheter with such a patient, I encouraged her to try and void it naturally. Next day, however, she complained so much of the pain that I was obliged to use the catheter, and, to my surprise drew off not more than 6 or 8 ozs. of very dark-coloured urine. (For some time, however, I had been gradually becoming suspicious that she had fallen a victim to what Charcot says is a common failing in such cases,—viz., indulgence in alcohol, asserting that it was the only thing which at times induced sleep. I have no doubt but that this had exercised a very injurious influence on the uterine condition, and also accounted to some extent for the non-success of treatment). Since this period (2½ years ago) ischuria, with the retention of urine, has been an almost constant condition with her, and associated with this are frequent attacks of diarrhœa and vomiting. I have never been able to detect any urinous odour in the matters vomited, nor has she ever had vomiting of large quantities of fluid such as Charcot describes. The diarrhœa, when present, however, is of a very liquid character, and is undoubtedly of a vicarious nature. For some time, I was considerably alarmed about the suppression of urine, and thought that some very untoward event must happen as a consequence. I tried all the commoner forms of diuretic remedies with little or no benefit. The only medicine which I thought really exerted some slight beneficial effect was a 1 per cent solution of nitro-glycerine, given at first in 1 or 2 min. doses, and latterly 5 min. doses, 3 or 4 times a day. Nitrate of sodium was equally beneficial. These were indicated by the presence of very high arterial tension. As time passed, and the condition of the patient did not seem to get any worse, I began to look about for some explanation of this very peculiar state of matters, and almost by chance came upon Charcot's lecture referred to, and which, I need hardly say, relieved my mind greatly. At the present time she is in better health than she was 12 or 18 months ago, being able to move about a little and attend to some of her household duties, while at that time she was almost constantly confined to bed and was having hysteroid epileptic attacks very frequently. I have examined the urine again and again, expecting to find some evidence of kidney disease, but up till lately no trace of such could be detected. It is usually, but not always, of a rather high specific gravity and of a dark colour, and in one specimen recently obtained I found a slight trace of albumen, but no tube casts. I believe the albumen on that occasion was the result of a period of over-indulgence in alcohol, as it has since entirely disappeared.

I subjoin, as an example of what has been the usual state of matters for the last 2½ years, a note of the dates on which she passed urine (naturally or by catheter) during the last two months as well as the quantity (when this was known) and characters. She uses the catheter herself. No urine was passed except at the times noted.

28th April.—Catheter, about 4 ozs., dark muddy colour.

3rd May.—Catheter, about 6 ozs., dark muddy colour.

11th May.—Catheter, about 10 ozs., lighter coloured.

17th May.—Catheter, quantity not more than 8 ounces.

20th May.—Passed a small quantity naturally when at stool.

24th May.—Catheter, about 8 ozs., dark coloured.

1st June.—Passed some urine naturally when at stool.

5th June.—Catheter, about 7 ozs., dark colour; sp. gr. 10·20, with trace of albumen; no tube casts.

16th June.—Catheter, about 6 ozs., not obtained for examination on account of menstruation being present.

19th June.—Passed a small quantity naturally when at stool.

22nd June.—Catheter, nearly 6 ozs., pale yellow colour; sp. gr., 10·17. No albumen nor tube casts.

28th June.—Catheter, about 7 ozs., dark muddy colour, with large deposit of urates; sp. gr. 10·35. No albumen nor tube casts.

More exact data as to quantity, &c., might have been obtained, but that I did not wish to exhibit *great* interest in it to her. The quantities given may be taken as approximately correct, and I have no doubt but that the dates are perfectly correct. During the month of May and beginning of June her bowels were constipated; during the latter half of June diarrhœa was present. Between the 24th of May and 1st June she had several severe hysteroid epileptic attacks, partly the result of some mental anxiety, and partly the result of alcohol. She asserts that the amaurosis is increasing, but this is doubtful.

Charcot, in the lecture referred to, enters into the question of the cause of this very peculiar affection, and concludes that it is not a question of simple retention, but one of suspended function, and that the true seat of the disease is neither in the secreting organs (the kidneys), nor in the ureters nor bladder, but in the brain or other part of the nervous centres.

Many very curious phenomena manifest themselves in cases of hysteria, and these take the form frequently either of an increase or a diminution of the natural organic functions; *e.g.*, we have such perversions as hysterical anorexia seen in "fasting girls," hysterical aphonia, hysterical hyperæsthesia or anæsthesia, and there is a hysterical polyuria, as well as an hysterical ischuria. The inexplicable feature of such cases is the fact that, notwithstanding the suspended function of such important organs as the kidneys, stomach, &c., the general health of such patients is affected to an immeasurably less degree than would be the case in a thoroughly healthy individual. I have seen no attempted explanation of this, nor can I offer any; but undoubtedly the explanation must be sought for beyond and outside of the particular organs concerned.

ADDITIONAL APPENDICES—BEING A SEQUEL TO PROFESSOR GAIRDNER'S ADDRESS ON INSANITY.

(*Continued from page 18, Number for July, 1885.*)

D.—*The Windham Case.* The following brief summary of this famous and altogether discreditable litigation will be found in the *Annual Register* for 1862. And since many of my readers may probably have forgotten, or even not have been aware of the facts, and of the impression produced by them at the time on the public mind, I have also added extracts from contemporary leading articles in the *Spectator*, *Saturday Review*, and *Lancet*, as indicating the general tenor of lay, as well as medical, opinion. It may be added that the scandalous waste both of time and of money involved in the trial, and the confusion and utter incongruity of the evidence submitted to the jury were so evident as to bring about almost immediately a reform in the English procedure in such cases, in consequence of which Commissioners *de lunatico inquirendo* were directed in future to limit the extent of the inquiry into the facts (which in Mr. Windham's case had been allowed to range over the whole life of the alleged lunatic); and also formally to exclude the evidence of scientific experts, in so far as it proceeded merely on opinion, and not on any personal acquaintance with the facts of the case. A Bill, with these objects in view, was introduced into the House of Lords by the Lord Chancellor (Westbury), on 27th February, 1862, and after a long and interesting debate, in which all the legal authorities of that house took an active part, was sent down to the House of Commons, where in committee, on 14th July, 1862, the exclusion, as proposed, of the medical evidence of opinion only was strenuously resisted by Sir Hugh Cairns and others, but after a division was ultimately carried and remained part of the Bill. This "Lunacy Regulation Act" received the Royal Assent on 7th August, 1862, and is now the law of the land; a very remarkable testimony to the widespread and irresistible current of legal as well as general opinion whereby, without admitting any essential failure of justice, the legislature, heretofore passive in the presence of more or less similar facts of daily occurrence, suddenly awakened to a new sense of duty, and came at once to recognise the existence of grave abuses unavoidable under the existing forms of legal procedure. What is, however, perhaps still more remarkable is that in all the discussions and proceedings, in Parliament and elsewhere, arising out of the Windham case, and issuing, as we have just seen, in a very much needed, though incomplete, reform in England, so little attention seems to have been given to the fact that in Scotland, by a usage in the Court of Session extending over much more than a century (from 1730)—and confirmed on appeal by the House of Lords itself after lengthened debate and consideration in 1828—a much simpler course is usually adopted, which gives satisfaction to the country and to all concerned, and in all but an insignificant number of cases has made recourse to the troublesome and expensive process of "cognition" before a jury wholly unnecessary.* The case on which the appeal was taken (James Bryce, John Dickson, and others, *appellants;* Walter Graham, *respondent*) was not without points of resemblance to the Windham case, such as to make it more than probable that, had the latter occurred in Scotland, a few hundred pounds, at most, instead of so many thousands, would have been spent in litigation. Moreover, the supercilious critics of the *Saturday Review* would not then have enjoyed the supreme satisfaction of cynically contemplating with approval the wretched prodigal "brought down to the husks and the swine troughs;" while the "filthy and often incredible details," the free publication of which for thirty-four successive days in the newspapers was so great an aggravation of the scandal, would have been confined, for the most part, to the four walls of a court. And, what is perhaps of more consequence than all, the well-known simplicity and reasonableness of the procedure, thus tested on every side by so many years' practical experience in Scotland, would in all probability have arrested the prodigal's downward career (without, at all events unnecessarily, interfering with the freedom of his person) through the simple appointment of a *curator bonis* to administer the estate, subject to the direction of the court. Is it, then, a part of the creed of the average Englishman, as it appears to have been of the *Saturday Reviewers*, that the Windham case, here briefly recorded, is a great and beneficial moral lesson which requires from time to time to be repeated as a warning to "prodigals," and for the edification of society? It may be safely affirmed that outside of England, perhaps even of London, no such opinion would at any time have been possible. At all events, in no other country in Europe, and least of all in Scotland, would the physical and moral utter ruin of Mr. William Frederick Windham, of Felbrigg Hall, have been allowed to proceed to its final consummation, in the much abused name of "liberty," without some kind of more or less effective legal supervision and control.

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* See Wilson & Shaw's *Reports of Cases Decided in the House of Lords on Appeal from the Courts of Scotland*, 1826–28, vol. ii, p. 481; and vol. iii, p. 323. Also, *Cases Decided in the Court of Session*, 1828, vol. vi, p. 425. I am happy to acknowledge here the kind assistance of Mr. James Graham, of A. J. & A. Graham, Glasgow, in giving me access to these references; and also of Mr. R. Bruce Johnston, W.S., of Edinburgh, by whose favour I am enabled to state that the entire number of applications to Chancery for brieves of cognition of alleged insane persons in Scotland, from 1864 to 1st June 1885, has been sixteen (or less than one in each year); while the applications for the appointment of a *curator bonis* during the same period have been very numerous.

Annual Register, 1862, p. 472.—"At the commencement of this year the attention of the public was much occupied by an inquiry which had been legally instituted to ascertain the mental competency of Mr. William Frederick Windham, of Felbrigg Hall, Norfolk, to manage his own affairs. This young gentleman, the only son of the late Mr. Howe Windham, who died in 1854, and the great grandson of Mr. Windham, the celebrated politician,* became of age on the 9th of August, 1861, when he succeeded to the Felbrigg Hall estate, worth upwards of £1,200 a-year, and to other properties in which he had a life-interest, and which, in the year 1869, would yield him £9,000 a-year more. During his minority he had been left to the guardianship of his uncle, General Windham, of Crimean renown, and of his mother, Lady Sophia Hervey, sister of the late Marquess of Bristol.

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* The *Lancet* denies that the unfortunate subject of the "Windham Case" was a descendant of the well known statesman. "The famous Windham transmitted his name and fortune to a family named Lukin. The late Admiral Windham was one of this family. The fact is, no Lukin has been able to acquire the intellect of a Windham by donning this illustrious name. That mould has long been broken up."—*Lancet*, 1st February, 1862, p. 127.

"From infancy he had exhibited many loathsome peculiarities of disposition, and many unhappy infirmities of mental capacity. As he grew up, these peculiarities and infirmities (in defiance of every effort made to eradicate them) appeared to strengthen rather than diminish; and when he became of age, one of his first acts—in addition to many of a very unbecoming nature—was to marry a woman of loose character, upon whom he bestowed jewellery of the value of £1,200 or £1,400, and upon whom he settled a present annuity of £800, with a further annuity of £1,500, contingent upon his coming in to the whole of his property in 1869. He also sold, in a wild and reckless way, and upon terms of the utmost disadvantage, the whole of the timber, ornamental as well as useful, on the Felbrigg estate. Altogether, his conduct, as soon as he became his own master, was such as to threaten a speedy dissipation of the whole of his property, and to raise a reasonable doubt as to his being mentally capable of managing his own affairs. Under these circumstances, Gen. Windham, his late guardian, felt it incumbent upon him to take some steps to preserve the Windham estates from becoming utterly wasted. At his suit, therefore, a commission *de lunatico inquirendo* was issued, to ascertain the state of the young man's mind, and to say whether he was or was not fit to be entrusted with the management and control of the large property of which he was the inheritor.

"This commission was opened in the Court of Exchequer by Mr. Samuel Warren, a Commissioner in Lunacy, and a special jury of twenty-one (*Qu.* twenty-two, see following footnote) persons, on the 16th of December, 1861, and did not close till the 30th of the January following, thirty-four of the intervening days having been wholly occupied by the inquiry; upwards of one hundred and fifty witnesses having been examined, and almost all the leading talent of the Bar of England having been heard in support of the various interests involved in the investigation.

"Into the details of this case, as developed in evidence before the commission, it would be inconsistent with every sense of decency and propriety here to enter. No public advantage would be derived from bestowing upon them such a permanent record as these pages would give; whilst every sensitive mind, recoiling from the description of them, would earnestly desire that so sad, so humiliating, and so revolting an instance of human infirmity should be left without a historian. It is enough to say that the courses of this young man's life, as exhibited in his habits, tastes, and conversation, were shown to be such as to leave no doubt of his being completely unworthy of the station to which he was born; but upon the main point of the inquiry—the question of whether he laboured under such a congenital infirmity of the brain as to render him irresponsible for his actions, and to incapacitate him for the management of his affairs—the medical testimony was so discordant and conflicting as to carry no clear or positive conviction with it. At the close, therefore, of the thirty-fourth day of the inquiry, the jury,* after an anxious summing up of the whole case on the part of the Commissioner, returned a verdict in these words: 'We find Mr. William Frederick Windham to be of sound mind, and capable of managing himself and his affairs.' By the public, who had narrowly watched the proceedings from the commencement—with no sympathy, it must be confessed, for the depravities of the alleged lunatic, but with the keenest jealousy lest the cherished liberty of an Englishman to do what he likes with his own should be in the slightest degree infringed—this verdict was accepted with general approval.

"What was thought of the whole matter in the graver quarters to which these popular impulses did not extend, may be gathered from the words of Lord Justice Knight Bruce, who, in refusing to exonerate the alleged lunatic from the payment of the whole of the costs consequent upon the inquiry—costs amounting to something like £20,000—said:—'The jury had decided that Mr. Windham was not a congenital imbecile, and he (the Lord Justice) did not mean to impugn their decision, but if he were asked to go further he should not be prepared to do so. He did not doubt that there was a sufficient case for the inquiry, nor could he question the motives of the original petitioners when he considered what had occurred shortly after Mr. Windham came into possession of his property. Upon the whole, his opinion was that the original application was *bonâ fide*—not made from personal motives or considerations, but with a view to the best interests of this petitioner; and, whether the Court had or had not jurisdiction to entertain this application, he thought the petition ought to be dismissed, so far as it related to the question of costs.'"

The Spectator, 1862, p. 95.—"There is no need to dwell on the filthy and often incredible details of the evidence. It discloses a sort of Walpurgis night, in which this miserable representative of an ancient house is to be seen surrounded by a gibbering circle of degrading associates—low lodging-house keepers, sharp money-lenders, railway guards, policemen, prostitutes, and attorneys, all eager for booty—while the pigeon, not very clearheaded even at the best of times, muddled yet more by the discrepancy between his comparatively narrow present income and his really splendid future prospects, yields himself an easy prey, until, finally, his relations, irritated by his follies, their family pride revolted by the shameless imprudence of his marriage, attribute, in their indignation, to mental disease the consequences of an evil training for which it is impossible to hold them wholly irresponsible."

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* "A diversity of opinion prevailed among the twenty-two special jurymen who sat on this celebrated inquisition. Fifteen considered the alleged lunatic of sound mind, while seven thought otherwise."—*Lancet* of 8th February, 1862, p. 162.

The Saturday Review, 1st February, 1862, p. 122, adopts also the view of legal sanity, but in the usual "Saturday" manner proceeds as follows:—"By giving Windham a verdict, you consign him to certain beggary. And why not? Why should not the certain and tremendous consequences of unbridled lust and egregious folly follow? Why should not the prodigal who wastes his substance on harlots and riotous living be brought down to the husks and the swine troughs in the end? Windham spurned from the door of the wretched creature who has helped him to ruin is a better example to society than Windham fat, idle, and well cared for under mild and domestic supervision at Turnham Green."

The Lancet, 1st February, 1862, adopts the alternative of sanity (in a legal sense) as in accordance with the whole evidence, but with the following important reservation—"His proper settlement may perhaps be found in the border-land between sanity and insanity. We shall not be proud to welcome him as a denizen of the land of healthy mind. But we cannot find it in our hearts to banish him to those dreary realms which lie beyond the limits of rational and free humanity."

E.—*Witch-finding and Witch Prosecutions in Scotland. The raw material of a "Witch," medically observed—Case. Historical Remarks. Sir George Mackenzie. Reginald Scot's "Discoverie of Witchcraft."*—"Witch-finding, or witch-pricking, became a trade, and a set of mercenary vagabonds roamed about the country, provided with long pins to run into the flesh of supposed criminals. It was no unusual thing then, nor is it now, that in aged persons there should be some spot on the body totally devoid of feeling. It was the object of the witch-pricker to discover this spot, and the unhappy wight who did not bleed when pricked upon it, was doomed to the death. If not immediately cast into prison, her life was rendered miserable by the persecution of her neighbours." *Charles Mackay, Memoirs of Extraordinary Popular Delusions*, 1841, vol. 2, p. 230. "The Witch Mania."

"At the trial of Janet Peaston, in 1646, the magistrates of Dalkeith caused John Kincaid of Tranent, the common pricker, to exercise his craft upon her. He found two marks of the devil's making; for she could not feel the pin when it was put into either of the said marks, nor did the marks bleed when the pin was taken out again. When she was asked where she thought the pins were put in her, she pointed to a part of her body distinct from the real place. They were pins of three inches in length." *Pitcairn's Records of Justiciary*, quoted in Mackay, *ut supra*, p. 245.

"Two good helps may be used [for the discovery of witches]: the one is, the finding of their mark, and the trying the insensibleness thereof; the other is, their floating on the water; for, as in a secret murther, if the dead carcass be at any time thereafter handled by the murtherer, it will gush out of blood, as if the blood were crying to Heaven for revenge of the murtherer (God having appointed that secret supernatural sign for trial of that secret unnatural crime); so it appears that God hath appointed (for a supernatural sign of the monstrous impiety of witches) that the water shall refuse to receive them in her bosom, that have shaken off them the sacred water of baptism, and wilfully refused the benefit thereof." King James VI of Scotland. *Treatise on Demonologie and Witchcraft*, quoted *Ibid.*, p. 235.

These three extracts, taken for convenience of reference from the popular, but by no means inaccurate or exaggerated essay referred to in the first of them, may be regarded as fairly representative of proceedings in respect of witchcraft, only too common during the 15th, 16th, and 17th centuries of the Christian era, whether under the Catholic or the Protestant regime, in almost every country in Europe. These passages could easily be reinforced by more copious references, not only to the witch persecutions of the Middle Ages, but to the proceedings of Scotch Presbyteries during the last of these centuries. In the Presbytery of Brechin, for instance, I find that the first and leading *fact* set forth as the ground of accusation of these unfortunates is usually that A. B. is "under a reigning bruite"—*i. e.*, generally reputed a witch by her neighbours; and from this, there almost inevitably follows an outpouring of every kind of petty scandal and gossip to the disadvantage of the unhappy woman—old or ugly, or only helpless and poor and miserable as the case may be, who chances to have been thus placed under the ban of popular opinion.* It would be too much to say that no attempt at the judicial sifting of these vile calumnies ever took place, for I find in the proceedings of several presbyteries such accusations dismissed, after inquiry, as false or untenable, and their propagators severely reprimanded, or even punished ecclesiastically, as malicious troublers of the peace. But the prepossession of all minds was such as to give to such scandals an altogether factitious importance; and questions which no modern court of justice would entertain even for a moment, were, under the influence of the horror and fear which in those days the very name of a witch inspired, most seriously considered, and almost invariably with a strong bias against the accused; a bias which was diligently cultivated, especially in ecclesiastical courts, through the instructions frequently issued as to the alarming increase of witchcraft and witches, and as to the solemn duty incumbent upon all parish ministers and kirk-sessions to have all supposed witches properly "dilated" and brought to trial. Thus, in the parish of Skene, in 1602 (a few years after the publication of King James' notorious Treatise above cited), it was "concludit, that their be ane privie inquest of the haill parochin, of wiches, *and sic as are dilate*, that thair names, with thair dictay (accusation), be wreitten in ane roll, togidder with the names of sic as they knaw maist meit to pass on thair assye, that knawis their life best; and this inquisitione to be maid betwixt (this date) and the first of August nixt, and immediately send to the moderatour, Mr. Archebell Blakburne, to be send inclosit be him to the Marques of Huntlie, that the land may be purget of sic instrumentis of the dewill."†

In the *Abbotsford Miscellany*, vol. i, pp. 133-185, will be found the whole legal details of seven trials for witchcraft in Orkney, between the years 1624 and 1643. The facts adduced in support of these accusations were neither more nor less convincing than usual; but every one of these seven women was condemned and burned as a witch at the first assize, excepting only Katherine Cragie, who was tried on 16th

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* *Extracts from the Records of the Presbytery of Brechin, from 1639 to 1660.* Dundee: William Kidd, 112 Nethergate. 1377. This small pamphlet of only 64 pages is full of most interesting details of accusations of witchcraft, and still more curious confessions of the victims of such accusations.

† *Minutes of the Kirk Session of Aberdeen.* Spalding Club: 1846, p. 188.

June, 1640, and acquitted; but only to be again accused and tried on 11th June, 1643, on which occasion she too, like the others, was condemned to be burnt as a witch.

So wide was the sweep of the witch-finder's net, that even the most ordinary tricks of the healing art, such as have been practised in almost all ages by those who were not above using mystifications and physically harmless superstitious observances, were very apt to bring about a presumption of witchcraft, if unsuccessful, or if on any other grounds such a charge was considered appropriate. It would be very easy to set forth, even out of medical treatises of good reputation in their day, and certainly out of many popular treatises not under suspicion of commerce with the powers of evil, practices more open to objection than those on account of which Isabell Smith was "dilate of witchcraft" at Banchorie, on the 23rd of July, 1607.* It appears clear on the record that all that was done in this case was done in the supposed interest of the patient, and at the request of the mother, who went to Isabell Smith and besought her assistance on behalf of the sick girl. Being thus led "be hir earnest solicitation and offers of geir," Isabel Smith "put a thried about her (the patient) to see giff the sickness was the feweris or not." After the thread was wound round the body of the sick girl, she was "commandit to gang anes about, in the name of the Father, the Son, and the Halie Gaist;" but in all this the accused expressly denied all witchcraft. Unfortunately the girl, in the end, died; and accordingly "it was allegit that Smyth had wiched hir." The issue of this case is not given, but the absolute childishness of the accusation, and the great probability that after all no evil was either intended or done, make it a noteworthy instance in the present connection. Even in the present day such superstitious practices are probably not uncommon in some parts of the country: and I know of at least one county in England where a well informed parish clergyman writes to me that "it is quite within the facts to say that there is hardly a parish in this county that has not some one in it who has actually consulted a 'wise man' or 'wise woman.' I could give chapter and verse for at least half a dozen instances of people within pistol shot of my own door who have resorted during their life time to 'witches and other night gear.'"

These facts being premised, as illustrations from various sources of the traditional witch element in Scottish, and partly in English, society, I may now submit to the reader some of the medical details of a case which has been repeatedly under my own personal observation, and in which it appears more than probable that two centuries ago a "reigning bruite," and a formal accusation thereon following, might have given an unhappy notoriety to the quiet and unpretending, and I believe perfectly harmless, life of a sufferer from hysterical analgesia, with depression of spirits and *tædium vitæ* developed almost to the point of monomania. It was out of such materials, undoubtedly, more or less developed into activity by the current fanaticism and panic, that the typical "witch" of the past ages was formed; and yet no one in the present day can look upon the unfortunate sufferer whose case is here recorded as anything but the victim of a *neurosis* allied, at least, to insanity, and needing only sympathetic and humane treatment whether in an asylum or out of it. For obvious reasons, I think it only due to this poor woman to suppress every detail that might make her the object of a notoriety founded on mere curiosity; and I have no doubt that all the members of my hospital staff, and of several clinical classes, who have heard me speak of her as "a modern witch," will aid me in so protecting her from undue publicity. I will only add that, in a letter from an old pupil in charge of a workhouse in which she was temporarily resident, I have ascertained that various distinct delusions, and also tendencies, not hitherto very strongly developed, towards suicide, have been added to the evidences of a disordered mind which appeared at the date of the first report.

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* Spalding Club, 1846, *ut supra*, p. 199.

Mrs. X. Y., when I first made her acquaintance more than six years ago, was a woman already for several years past child bearing, and although there was no obvious reason for it as regards the state of her functions, she had, as matter of fact, been childless throughout nine or ten years of a married life. I could not ascertain, after strict inquiry, that she was positively estranged from her husband, or that he treated her ill, in any very tangible sense; but the impression left on my mind by such inquiries as could be properly made under the circumstances was that he was a harsh and domineering man, with a hot temper, and that, without being absolutely cruel to his wife, he was extremely difficult to get on with. She did not appear to have taken it to heart that she had no family, but admitted in general terms that she had had "a deal of trouble" during her married life; and although not in extreme poverty when I first knew her, was always more or less on the verge of it (she has since been in the workhouse), and always worked hard to support herself. She was not at all sure as to her age, but had derived from her neighbours the idea, apparently not inconsistent with the facts, that her present disorder was to be associated with the "change of life" which had occurred some years before. There was no reason whatever to suspect disease of the uterine organs at any time, and there was no "ovarian hyperæsthesia" at the time of examination in April 1879. Her whole tone of mind was despondent, but at the same time quietly so, and without any obviously hysterical manifestations of the ordinary kind; nevertheless, at times there was observed a kind of tremor or "shudder" (as expressed in the report) which, together with the more permanent and congenital deformity of a wry neck, and her forlorn and rather unsociable ways, gave her at times a rather "weird" appearance. This phenomenon is thus described about a month after her admission, and in connection with a demonstration to the class of the facts to be presently indicated. "The chief manifestations (of hysterical emotion) observed are a kind of almost choreic spasm of the head and neck, sometimes extending to the upper extremities, but hardly amounting to more than a momentary tremor or, as it were, a little shudder, so often repeated, however, and with such accompaniments as to raise the suspicion that she is under a paroxysm of emotion." This, however, she maintained not to be the case, in as far, at least, as any immediate exciting cause was concerned; but she admitted that attacks of the kind referred to had occurred occasionally throughout her complaint. It may, perhaps, be added, as an afterthought, that I never personally observed her to shed tears on any of these occasions (an indubitable sign of a witch, according to ancient opinions). To me she always appeared a perfectly simple and more than usually innocent and guileless person, though a prey more or less to melancholic impressions, if not delusions; but with her odd, and certainly ungainly appearance, her unsociable ways, her notable physical infirmities, and her own strong impression of a desire to be done with this world altogether, one could not but think with horror of what would have been the inevitable issue, had she been brought into suspicion by a "reigning bruite" of witchcraft (say in the Presbytery of Brechin) in the middle of the seventeenth century. I may add that I have no evidence to put on record in her case bearing on King James's *second* test of a witch—"their floating on the water," as this did not fall within the bounds of a legitimate clinical experience; but as regards the *first*—"the finding of their mark and the trying of the insensibleness thereof," the facts are sufficiently curious to demand a little more detail.

The only actual complaint of this poor woman, as being the apparent source of so much misery to herself, and the only appreciable and definite fact, other than the general ones above stated, pointing to disease of the nervous system, was what she herself called a "want of feeling," associated with perfectly indescribable internal sensations; she sometimes called this a "numbness all over," and at other times gave expression to it as a kind of vague uneasiness, not amounting to actual pain. This ever present sense of personal inconvenience is variously alluded to in the course of the history she gave of her disease, as extending back for about nine months before admission. Thus, on one occasion, she spoke of "queer sensations going up to her head," and of "something moving about inwardly all through the trunk of the body," and of a sensation beneath the sternum, or about the front of the lower thorax, "as if something was being drawn out of her," but at the same time saying that it was not a pain, and speaking in general of all her sufferings with calmness and moderation, and only as the result of much questioning about them. The one exception to this, perhaps, was the constantly obtruded expression that she was "tired of life, and did not care what came of her;" and the only reason assigned for this, with unvarying consistency, was that she "could not feel anything as she ought to do," and accordingly felt miserable and woe-begone. She repeatedly and spontaneously said that she "would rather be dead," and when asked to explain herself on this, added that she had "no pleasure in life," because she "feels so queer" when moving about or doing anything.

It remains to be added that a most careful analysis of the above symptom, carried over many examinations at intervals, (the details being much too long to be fully recorded here) satisfied us that the symptom itself was not properly *anæsthesia* (as in such cases too often described even by skilled observers), but purely and solely *analgesia,* or deficiency in the sense of *pain,* as it is most ordinarily and decidedly manifested in normal subjects. The very fact that she occupied herself much with knitting showed that there was no *anæsthesia* in the proper sense of the term ; but, further, experiments carefully conducted by the usual tests for tactile, thermometric, and ordinary cutaneous sensibility showed them to be at least as active and precise in their indications as in any average person in good health. The special senses were unaffected, except that a certain amount of deafness had increased upon her between 1879 and 1883, even while the other more special symptom of analgesia was, if anything, diminishing in its intensity. The reflexes, so far as examined, were all correct, except that the sensation of tickling the sole of the foot was by no means acutely felt. With all this exemption from true *anæsthesia*, however, it was constantly observed that *on both sides*, and, so far as observed, all over the surface of the body, the sense of pain was extremely deficient. "A pin can be stuck into any part of her surface so far as hitherto tried, or even passed through a fold of integument again and again without her wincing in the slightest degree, or giving even the least evidence of pain" (at a later period, in 1883, this statement had to be somewhat modified). She *felt* the contact, and knew exactly where it was, and that it was that of a pin, but the sensation was not of pain, but "just a little bit more" than that of mere contact. The mucous membranes, also, participated in this peculiar form of insensibility, in so far as that the tongue could be perforated through and through by a long needle without her showing, or apparently feeling more uneasiness than in the case of the external integument, and the conjunctiva of the eyes, although, when roughly handled or pricked tears followed (the only tears I observed her shed), might also be perforated (as far as was deemed expedient in the way of experiment), without any really painful sense of what was done being aroused (this statement also had to be modified in 1883).

Cases like that of Mrs. X. Y. have been frequently recorded on the Continent, since the well known work of Briquet on Hysteria,* by Charcot and others, but almost always in the form of *hemi*-anæsthesia, or of localised anæsthetic patches, more or less scattered over the surface; these last corresponding with the points "totally devoid of feeling" so persistently explored by the "witch-finders." I have, therefore, thought it worth while to place this one on record, not only as being medically and physiologically interesting in itself, but as presenting to the general reader, in the most striking way possible, what in the heading of this note I have ventured to call the "raw material" of a witch. Given, an elderly and unattractive person, with some notable peculiarity or deformity, solitary habits, and a melancholic temperament, public opinion, as then existing, and as it was fomented and almost regularly organised by the presbyteries, would

* *Traité Clinique et Thérapeutique de l'Hystérie.* Paris. 1859.

be sure to do all the rest. And, as regards Scotland, no one can read the testimony of Sir George Mackenzie of Rosehaugh, a believer in witchcraft, and responsible as King's Advocate for many of the prosecutions in his day, without feeling that even the ablest and most independent legal minds of that age were dragged unwillingly in the wake of the popular fanaticism, and compelled to witness its victories over poor, friendless, and, in reality, quite innocent, women, upon evidence quite worthless, and often prompted by malice, or instigated by wretches capable of any wickedness in the way of misleading their victims, and hounding them on to destruction, sometimes by confessions extorted under physical or mental torture.

Sir George Mackenzie is, indeed, quite a typical historical figure, not only in connection with witchcraft, but in respect of the whole of the political and religious movements which agitated Scotland in the latter part of the 17th century. Born in 1636, and educated partly at home and partly on the Continent, he passed as an advocate in 1659: and, with the exception of some comparatively unimportant literary occupations, the very first work in which we find him engaged was as "justice-depute," appointed to repair "once a week at least to Musselburgh and Dalkeith, and to try and judge such persons as were there or thereabout accused of witchcraft." He was a man of firm character and strong convictions, religious after his own (which was not, however, the popular) fashion, and evidently involved in the partizanships of the time more from necessity than from choice, as his real bent of mind was that of a thinker and a student. This disposition he maintained with such devotedness and pertinacity that, after the revolution, and at the close of a public career of great distinction, he retired to Oxford, and was admitted there as a student at fifty-four years of age, in June 1690; thus carrying out in practice what he had adopted in theory as his true ideal at least twenty-five years earlier when, in his "Moral Essay upon Solitude," he exalted that state above public employment with all its advantages; notwithstanding which, he acted, with a short interval only, as king's advocate, or public prosecutor, from 1674 to 1688, during all those most exciting and terrible years when Scotland was working out, in blood, her own emancipation from a civil and religious tyranny as ruthless as that of Alva in the Netherlands, though happily much less successful. There is no doubt at all, therefore, that of the civil side of prosecutions for witchcraft this eminent lawyer must have seen and known more than any other Scotsman of his day, and there is equally little doubt that his own personal convictions were thoroughly in accord with the general belief, even as professed among his political and ecclesiastical opponents. "That there are witches," he writes, "divines cannot doubt, since the word of God ordains that no witch shall live; nor lawyers in Scotland, seeing our law ordains it to be punished with death."* And lest these should be taken as merely official utterances, he proceeds with all the apparent strength and intensity of a fixed and rooted belief in demoniacal agencies, to dispute under several heads the opinions of "Wierus, that great patron of witchcraft," in a manner far more plausible, if not more earnest and convincing, than that of King James, in the treatise above referred to, which inaugurated the new era of witch-persecutions under Protestant rule, in the very beginning of the century. But while the general principle of the punishment of witches, even with death (since witchcraft is "the greatest of crimes, accompanied with murder, poisoning, bestiality, and other horrid crimes") is thus steadily maintained, Mackenzie goes on to argue—"Yet from the horridness of this crime, I do conclude, that of all crimes it requires the clearest relevancy and most convincing probation. And I condemn, *next to the witches themselves*, those cruel and too forward judges who burn persons by thousands as guilty of this crime, to whom I shall recommend these considerations."

Here follows an extremely logical and well balanced argument under twenty-six heads, in which it is plain that the author's experience, here placed deliberately before the public only ten years before the close of his career as a Crown official, and, therefore, with the most complete information, as well as under the fullest sense of responsibility, had led him greatly to distrust, and even strongly to deprecate, the current judicial proceedings under which "poor ignorant creatures, and oft times women who understand not the nature of what they are accused of, and mistake their own fears and apprehensions for witchcraft," are deliberately tormented with the view of making them confess. In his earnest pleadings to this effect, Sir George Mackenzie appears to much greater advantage than in those political trials which procured for him in Scotland the evil reputation of "the bloodthirsty advocate." The vivid impression he leaves on the mind, *ex certissima scientia* (as he says) of "poor creatures, confounded with fear, and so starved for want of meat and sleep, that hardly wiser and more serious persons than they would escape distraction;" of others, "tortured by their keepers, who, being persuaded that they do God good service, think it their duty to vex and torment poor prisoners;" and the admission "that most of all that ever were taken were tormented after this manner, and this usage was the ground of all their confession," taken in connection with the very loose methods of procedure which he denounces in measured, but still powerful and convincing language; all these suggestions, proceeding from a man by no means too tender hearted, and believing in witchcraft as "the greatest of crimes," demanding for its punishment "the most ignominious of deaths," form a picture not easily to be surpassed of strong common-sense fighting with inveterate prejudice. And when we consider the rather timid, but profoundly wise recommendation he makes, to "remit to physicians and others to consider what may be the effects of melancholy"—*i.e.*, insanity, in their bearing upon witch prosecutions; we feel bound to reflect, in the name of justice and charity, that many of those who accused Sir George (probably with abundant justification) of bloodthirstiness were themselves the chief abettors of these monstrous prosecutions, and would have regarded a "remit to physicians" in such cases on the ground of insanity as sheer enmity to God and collusion with Satan.

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* *Discourse on the Laws and Customs of Scotland in matters Criminal.* 1678. Title X, "Witchcraft." This chapter will be found entire, with much other extremely interesting matter bearing on this subject, in a little volume reprinted in 1877. (Gardner, Paisley.) *A History of the Witches of Renfrewshire.*

But whether the physicians of those days, under any conceivable form of judicial "remit," could have risen to the height of the duty thus sought to be imposed on them, must be regarded as doubtful; inasmuch as I have not encountered a single instance in Scotland, during the period referred to, in which such a remit was formally made. In England, however, we know that at one assize, at least, one of the most eminent, and probably also one of the most humane, of her many great judges, Sir Matthew Hale, was supported by the opinion of one of the most delightful of medical authorities (speaking of him in a literary sense), in using the powers of the law then existing in the sternest manner, and apparently after every possible consideration, against this imaginary crime. The occasion was the condemnation of two old women at the assizes held 10th March, 1664, at Bury St. Edmund's, in Suffolk, on an indictment for bewitching seven persons. Sir Thomas Browne, the celebrated author of the *Religio Medici,* gave evidence at this trial, and expressed his opinion that the persons named in the indictment were actually bewitched. The testimony as to the guilt of the accused persons, however, was in other respects conflicting; and the judge, in addressing the jury, declined to repeat or comment upon the evidence, but strongly affirmed the reality of witchcraft, appealing to the Scriptures, and also to "the wisdom of all nations, which had provided laws against such persons." The blameless integrity and impartiality of this judge, and the remarkable benignity of his personal character, combine to make the issue of this solemn proceeding peculiarly impressive. "He desired the jury strictly to observe the evidence, and implored the great God of heaven to direct their hearts in so weighty a matter; for to condemn the innocent, and to let the guilty go free, were both 'an abomination to the Lord.' The jury found the prisoners guilty upon the several indictments, thirteen in number. The judge and all the court *being fully satisfied with the verdict,* judgment of death was given, and the penalty was suffered."

The details of this trial are to be found in a rare treatise published in 1683, a copy of which is in the British Museum; also in *A Collection of Modern Relations of Matter of Fact Concerning Witches and Witchcraft upon the Persons of the People, &c.,* 1693. This last collection contains also an unfinished meditation, said to have been written by Judge Hale, "the next Lord's day after his trial of the witches." Mr. Cotton Mather printed this trial in his *Wonders of the Invisible World;* and the opinion of Sir Matthew Hale must therefore be held to have had some influence, more or less, in justifying at the time the frightful outbreak of fanaticism among the Puritans of New England, which distinguished the closing years of the century, 1689-93.

In Mr. Lecky's *History of Rationalism* * will be found the most modern and, in some respects, the most broad and philosophical view of the whole of this dark subject, considered as a phase of the evolution of European civilisation and progress. But I cannot leave it, even in a note, without expressing, more strongly than even Mr. Lecky does, the unqualified admiration and surprise which arise in the mind on finding that in 1584, or eighty years before the trial just referred to, there was at least one man in England, and he not a physician, nor yet a lawyer, nor a divine, who could scan the whole field of demonology, and all its terrible results in history, with an eye as clear from superstition, and a judgment as sound and unwavering in its opposition to abuses, as that of Mr. Lecky himself. There is only one book, so far as I know, in any language, written in the 16th or even the 17th century, that merits this praise; and it is a book which, notwithstanding its wide human interest, its great and solid learning, and a charming English style that makes it most readable even at the present day, has never been reprinted for two hundred years, and is therefore extremely inaccessible to most readers. Reginald Scot's *Discoverie of Witchcraft* * has been often referred to by persons who, I have reason to think, had never even seen it; and being included along with the treatise of John Wier (*De Prestigiis Dæmonum et Incantationibus ac Veneficiis,* Basil, 1566), in a common condemnation by the royal witch-hunter, King James VI, it may on this account alone, besides its intrinsic merits, be said to have a historical importance. Nothing, however, can be more clear than that Scot, however indebted to Wier (and both of them, probably, to Cornelius Agrippa, whose life has been so pleasantly portrayed for us by Mr. Henry Morley), was far in advance of either in the clearness of his views and the unwavering steadiness of his leanings to the side of humanity and justice. The book stands brightly out amid the darkness of its own and the succeeding age, as a perfectly unique example of sagacity amounting to genius, and therefore it is rather more than probable (as Nathan Drake has endeavoured to show) that Shakspeare drew from it many of his allusions, and, in one point at least, a part of the more substantial machinery of the *Midsummer Night's Dream.* It gives me great pleasure to mention here that a reprint of this curious book is in progress, edited by my friend Dr. Brinsley Nicholson, a member of the new Shakspeare Society, and a well known student of Elizabethan literature. It will shortly be published by Mr. Elliot Stock. The work of John Wier has also been recently reproduced in an old French translation in Paris, under the auspices of the journal *Le Progrès Médical,* edited by Charcot and Bourneville, as bearing upon the medical questions referred to in this note.

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* *History of the Rise and Influence of the Spirit of Rationalism in Europe.* By W. E. H. Lecky, M.A. 2nd Edition. 1865. Vol. ii, Chap. 1, "On Magic and Witchcraft."

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* The full title of the original edition of this remarkable volume is as follows:—*The Discouerie of witchcraft, Wherein the lewde dealing of witches and witchmongers is notablie detected, the knaverie of conjurors, the impietie of inchantors, the follie of soothsaiers, the impudent falshood of couseners, the infidelitie of atheists, the pestilent practises of Pythonists, the curiositie of figurecasters, the vanitie of dreamers, the beggerlie art of Alcumystrie, the abhomination of*

idolatrie, the horrible art of poisoning, the vertue and power of naturall magike, and all the conueiances of Legierdemaine and iuggling are deciphered: and many other things opened, which have long lien hidden, howbeit verie necessarie to be knowne. Heervnto is added a treatise vpon the nature and substance of spirits and diuels, &c: all latelie written by REGINALD SCOT, Esquire."—"I IOHN, 4, 1—Belieue not everie spirit, but trie the spirits, whether they are of God; for manie false prophets are gone out into the world, &c. 1584."

Well might King James, from his opposite point of view in the controversy, protest against "the damnable opinions of . . . one called Scot, an Englishman, [who] is not ashamed in publicke print to denie that there can be such a thing as Witchcraft, and so maintains the old errour of the Sadducees in denying of spirits"—an argument much more fully and ably maintained, nearly a century afterwards, by Joseph Glanvil, late Chaplain-in-Ordinary to His Majesty, and Fellow of the Royal Society, in his *Saducismus Triumphatus;* in reference to whose position in philosophy, literature, and theology, the reader will do well to consult Mr. Lecky's book, above mentioned, and also the admirable work of the Very Rev. Principal Tulloch on *Rational Theology and Christian Philosophy in England in the Seventeenth Century.*

THE TREATMENT OF CANCER OF THE RECTUM BY EXCISION, WITH A RECORD OF SEVEN CASES.

BY GEORGE H. B. MACLEOD, M.D., F.R.S. (EDIN.),
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IN this paper I wish to discuss this subject mainly with reference to the recognition of the disease and its operative treatment; but to do this clearly and satisfactorily it will be necessary, or anyhow desirable, to enter into a good many details.

That the rectum is very liable to malignant disease is well known to hospital surgeons, but I very much doubt whether the great mass of the profession are quite alive to its commonness, as so many cases come before one in the course of the year in which the affection has been overlooked or its true nature mistaken. I need hardly say that no disease is more terrible or hopeless unless recognised early, when much relief can, I think, be got by operation, and a respite secured from the intense suffering which it occasions if allowed to run its course, so that it is most important that practitioners should be fully on their guard against error in recognising its earliest manifestations.

It will be readily understood how much predisposed the rectum is to such a disease as arises from irritation when we consider its dependent position; its large blood and nerve supply; its liability to congestion; its anatomical structure and its function. Its veins (most of them without valves) are liable to embarrassed action from muscular movement and the neighbourhood of such active and changeable organs as the genito-urinary. The veins are also apt to suffer from affections in such distant parts as the heart, lungs, and liver. The rich supply of follicles (which Peyer likened to the stars in the firmament); its sensibility, due to the liberal fund of both sympathetic and cerebro-spinal nerves; and its function, which exposes it to contact with irritating substances and rude frictions, all contribute to produce an incidence to chronic ailments. The neighbourhood, too, of the sphincters exposes it to the same influences, as regards contraction, as various other parts of the alimentary canal where observation shows cancer is apt to arise.

For surgical consideration the rectum is best divided into three parts. The ano-prostatic, which extends upwards to the apex of the prostate gland—the portion hence to the reflexion of the peritoneum and the highest part which reaches up to the sacro-iliac symphysis. It is with the lower portion alone, as I believe, that we have to do in excision, and unless the relations and connections of that part are carefully considered an operation may occasion much trouble. The short bend forwards and upwards which the bowel takes near the anus makes it necessary to give that direction (towards the pubes, as it were), to the finger and speculum when entering the gut, and then the backward and upward curve reaches the apex of the prostate at a distance of one and a half to two inches from the anus. The "recto-urethral triangle" in front between the rectum and the urethra gives space in the male for Dupuytren's and Nelaton's methods of reaching the bladder in lithotomy, but in the female the partition between them is thin and easily penetrated. The ischio-rectal fossæ and the bed of cellular tissue which intervenes between the mucous membrane of the bowel and the muscles are of much service in facilitating operative proceedings. The second portion of the bowel is in very close relation to the base of the prostate in the male and the upper part of the vagina in the female, there being only a thin layer of connective tissue, devoid of fat, interposed. Cancer originating in the os uteri thus very readily penetrates into the rectum in women; but in men the strong capsule of the prostate long opposes such invasion. The so-called valves of the bowel need not detain us, though the old controversy regarding a third valve and its use has been much discussed in these later times since Nelaton ascribed so much to its action. The supply of arterial blood must, however, be alluded to, as its large amount has been one of the great sources of alarm in undertaking operations. I have never seen any troublesome bleeding in excision, and, as a rule, I have not had a single vessel to tie, but the most apprehensive statements have been made on the subject, founded on the experience of those who do not scruple to remove much more of the bowel than I think should ever be interfered with. The three hæmorrhoidal arteries lie between the mucous and muscular coats, and if we separate, as we ought, the whole cylinder of the gut from its cellular bed, we leave the blood-vessels undivided to the last moment, and then we have many effective plans for preventing their undue bleeding. The main artery (superior hæmorrhoidal or direct continuation of the mesenteric) is, of course, a vessel of considerable size. It courses down the posterior surface of the bowel to the middle of the sacrum, where it divides, and if it be closely adherent to the bone and be cut above its division, very profuse bleeding may take place, which can only be dealt with by dividing the structures well backwards towards the coccyx, so as to give room to secure it. I am, however, inclined to think that an operation which removes the bowel so high up as that (4 ins.) should not be performed. The free anastomoses which exist between the blood-vessels, and their origin from three different sources, make the bowel highly vascular.

For diagnostic purposes, we must bear in mind that it is the lymphatic glands along the spine which receive the absorbents from the interior of the bowel, and that it is only those from the anus which go to the groin. There is a chain of glands behind the bowel, in the hollow of the sacrum, which, when enlarged, may be mistaken for rectal growths.

Many curious anomalous symptoms, even in distant parts, as the foot, are due to that connection which Hilton pointed out between the fine terminal twigs of the internal pudic, (which come to the surface in the white line he describes between the sphincters) and the sciatic through the sacral plexus. I lately saw a case which recalled a well known one spoken of by Brodie. A clergyman, who wears a support for prolapsus, told me that if the smallest part of the bowel slips down, and is pressed on by the pad, he not only suffers great pain down to his heels, but his lower limbs become quite powerless till he adjusts the apparatus. Sensation is chiefly seated in the anus. Higher up it is very deficient, so that a great deal of disease may exist some way above the anus and escape detection, because there is little suffering occasioned by it, and from this consideration we may ground a fair argument for operation when the lower portion of the bowel is involved. Pain in the loins, groins, sacrum, buttocks, and thighs, vesical and urethral irritation, incontinence and retention, may all be due to disease low down in the rectum. The peculiar grunting which is almost always present when a patient under chloroform is being operated on for piles is no doubt due to the nervous relations of the part.

Carcinoma in all its forms is said to occur in the rectum. In the early part of my career I frequently mistook the hard masses encountered for scirrhus; but I am fully convinced that the view long held in Germany is the true one—viz., that the cylindrical form of epithelioma is far and away the most usual species of carcinoma met with in this region. I have hardly ever encountered any other. The French speak of colloid disease being common, and English surgeons describe scirrhus as being most frequent, and this error is reproduced in even the last edition of Holmes' *System of Surgery.* The squamous form of epithelial disease is occasionally seen close to the orifice, but the usual disease we meet with in practice is within the sphincters, and separated from the anus by a band of unchanged mucous membrane. At first it is in detached and limited superficial patches, movable, and attracting little attention, but in time it surely spreads in all directions till the whole channel of the bowel is encircled and filled. It is very rarely we have an opportunity of detecting it in its initial stage, unless an examination is called for in connection with some other affection, as it often attracts too little notice to make the patient seek advice. The hard base and coin-like feeling should, however, when it is met with, suggest the true nature of the ailment. In its early stage it can be removed with much success. It is not usually rapid in its course, and may not ulcerate for a considerable time. Scirrhus grows from the sub-mucous connective tissue, and true to its nature, soon welds to itself all contiguous structures, so that the mucous membrane, which at first slides over it, gets sealed to its surface and ulcerates, giving rise to deep bleeding and destructive sores with hard ragged edges and sloughing surfaces, which break down under the finger.

Around the primary deposits new nodules form to repeat the same destruction.

I have only once met with what seemed to be encephaloid cancer in the rectum. A large fungus, which grew rapidly and bled profusely, and which quickly involved the glands and destroyed life, presented a clinical history very different from either scirrhus or epithelioma. I have never, that I know of, encountered either colloid or melanotic cancer in the rectum, though, of course, I have occasionally seen these forms of disease in the higher portions of the bowel. Epithelioma is, then, the form of malignant disease to which my subsequent remarks refer. That it is chiefly met with in men my observation certainly confirms, but I cannot equally agree with the common statement that it is much more frequent in the old. I have seen it most often a little over middle life, and occasionally in youth, as lately, when a poor lad of 18 from Skye was in the Hospital with his bowel quite full of cancerous masses.

The squamous form of epithelioma is at long intervals met with at the anus, seated where skin and mucous membrane meet, and beginning just as in the lip as a hack or small ulcer with a hard base, and resisting ordinary treatment. This I have only seen in the old, and that in very few instances. Recently I saw such a case with Dr. Eben. Duncan.

What, then, are the symptoms which, when present, should make us suspect the existence of cancer in the rectum?

1. A tendency to irregular action of the bowels. Fits of constipation alternating with diarrhœa is, as is well known, a very common condition. The degree to which this symptom may be present varies, however, very much in different cases. More frequent desire than usual to go to stool, and little result following, flatulence, acid eructations, a feeling of distention, and possibly a slight looseness evening and morning, may be the whole complaint, and so "indigestion" gets the credit of the disturbance, and all sorts of "stomachics" are tried in vain. If, however, the symptoms mentioned arise in persons formerly healthy, and they begin to lose flesh while the usual remedies have been administered in vain, examine the rectum carefully.

2. Pain, though much relied on, is a most deceptive indication of the condition of the rectum. Its presence or absence depends greatly on the exact seat of the disease and the stage it has reached. The insensibility of the upper two-thirds of the rectum has been much dwelt upon by Hilton, while the lower two inches are, as was before said, very sensitive. The upper

portion, too, is capable of being greatly affected before it causes much disturbance. Pain, or anyhow a very annoying weariness may be experienced, and that in different parts. In lumbar region, sacrum, buttock, down the thigh, and in the distribution of the sciatic nerve generally—cramp in the leg due to pressure, irritation of the bladder, &c. Pain, then, if present, may arise from two wholly different causes, and it is necessary to keep this clearly in view when we come to consider how to relieve it. It may be due to the direct irritation of nerve filaments in the bowel by the open ulcers, or it may be caused by the pressure of cancer masses or enlarged glands on the nerve trunks within the pelvis. The former will be assuaged by the destruction or removal by operation of the ulcerated surface, or by colotomy, which gets quit of the fæces before the ulcer is reached, but no tapping of the bowel above the diseased point will remove the pain which arises from the pressure of a growing cancer. In obtaining the history of a case of cancer of the rectum, we must carefully note the exact seat of the pain, its degree, period of occurrence, in relation to the act of defæcation, &c.

3. *Discharge.*—This is at first thin and sanious, but small in amount. It occasions an itching and possibly some excoriation, and at this stage may attract sufficient attention to make the sufferer seek advice. It is, however, apt to pass for mere pruritus, or if there are piles it is believed to arise therefrom. Afterwards this leakage gets worse. It becomes slimy and offensive, and is often mixed with blood. It may become very abundant and bulk largely in the patient's description of his complaint. I have known it saturate twice daily a large pad of oakum which the patient fixed into the seat of his drawers. The bleeding is also often very free, so as greatly to exhaust the patient. It was to stanch the hæmorrhage that I performed my first operation of excision. Generally it is as the bowels are moved that the bleeding occurs; but I have known it continue, though in smaller quantities, between the acts. Profuse bleeding is at no time so common as a weeping of red or dark blood with the stool, and thus again it happens that the ailment is so commonly confounded with piles. A discharge, then, of watery or slimy fluid which keeps the anus moist, (especially if it is sanious), and defæcation, occasionally accompanied by an escape of red blood—should lead to a careful examination of the rectum.

4. *Mechanical obstruction of the bowel.*—Retention of fæces and distention of the colon, with the poisonous influence on the health which such retention occasions—difficulty in

discharging the fæces, and it may be entire obstruction, are further effects which hardly fail to attract attention to the rectum. This obstruction may come on suddenly when the disease is seated high in the rectum. In one case I saw some years ago, it was erroneously ascribed to volvulus, as the patient had not previously complained of any affection of the rectum, and she was supposed to have strained herself raising a bed. It set in at once and continued till her death. Colotomy is especially useful in such cases and should be performed at once.

5. *Enlargement of lymphatic glands* in the loin, groin, and behind the rectum in the hollow of the sacrum, which latter can, however, only be found when an internal examination is made.

6. *Progressive emaciation.*—This is often a very marked feature in these cases, but occasionally it is much longer of being established than we would expect. A large-made, strong, and healthy looking man came to the Western Infirmary last year with cancer of the rectum so advanced that I could not operate on him. He had been told he suffered from piles. He had not a trace of cachexia. This is, however, rare. Usually cancer in the rectum impresses itself but too visibly on the visage and whole frame. It is in men that the "facies" is, I think, most marked, and the yellow parchment-like face comes occasionally to be ascribed solely to liver complaint, especially if any secondary nodules have formed in that organ, and thus the source of the ailment is overlooked. Cancer of the rectum is one of the many complaints which are occasionally supposed to be "all liver."

7. *Size and shape of the motions.*—Much less can be made of this than is generally supposed. The evacuations are usually too loose to give any evidence, but now and again the pipe-stem, grooved or sheep's dung shape, is described. It is in simple stricture of the rectum that we are most apt to meet with alterations of the fæces in size and form. When stricture exists high up, Nelaton says we are most likely to have the small round masses, but that when the fæces lie for some time below the constricted portion we have larger round lumps extruded.

I know of no ailment which causes more depression of mind than cancer of the rectum when patients fully realise the miserable prospect before them. One of my patients recently committed suicide rather than submit to the daily attention his disease demanded.

A careful and thorough examination is of course called for whenever we suspect cancer in the rectum, and to do this effectively requires care. The finger is the best explorer, and the eye may also in many cases be applied. Curling's method of making the patient stand and place his right foot on a stool while the body is bent over the back of a chair is fairly effective, especially if the patient at the same time strains and presses his hand over the pubis; but a position which allows the abdominal organs to gravitate upwards as well as forwards usually suits better. Lying face downwards over a mound of pillows with the buttocks raised, as in the operation for vesico-vaginal fistula, is admirable. If anæsthetics are then employed, the sphincter well dilated, and a large speculum introduced, or the anus kept open by retractors, and a reflector used (with well arranged natural or artificial light), the whole lower portion of the bowel can be very thoroughly explored by the eye. A stream of water or the use of a sponge fixed on a stick will clear the field for careful inspection. For females, perhaps it is best to lay them on the right side on a high and firm couch with the knees drawn up. In examinations, or in using enemata or bougies, the patient should be laid on the right side, as then the so-called valves cause least annoyance. In order to insert the finger deeply, the wrist should be grasped by the other hand, or the knee, (the foot being placed on a chair), may be pressed against the elbow. For operation, and even in some cases for mere examination, the lithotomy position is best, as anæsthetics can then be better administered. Van Buren's modification of Marion Sims' retractor is the most useful instrument to aid the surgeon. It allows of more room, better light, and least interference of any instrument I know. It is very rare indeed that, for such examinations as I am now speaking of, it is desirable to introduce the whole hand within the bowel. It is an expedient which is not to be lightly undertaken, and only a small hand should be employed. A catheter or sound in the bladder is a useful aid in defining the limits and connections of rectal growths. Before all such examinations the bowel should be well washed out by an enema employed some hours before. By our examination we wish to acquire an accurate knowledge of the whole interior of the bowel as high up as possible. If there is a growth, we want to define its extent, its exact seat, its attachments, its degree of fixture, its consistence and physical characters, the condition of any ulceration present with the state of its edges and base, and the condition of the glands behind the bowel. If there is a stricture it is sometimes difficult to find the passage through it from the displacement produced by the cancerous masses. The finger, however, if gently used, will discover the way best, unless the sphincter is dilated and the bowel illuminated. The opening is often deeply set in the ulcerated area. It cannot be examined too gently.

In cancer the finger may discover different conditions which are each, however, characteristic of cancer, though differing from one another. Except in the rarer form of squamous epithelioma, there is a zone of seemingly healthy mucous membrane immediately within the anus. This zone varies in extent from half-an-inch to an inch. This contrasts with the state of affairs in syphilitic disease, where the ulceration begins at the orifice and spreads upwards, leaving no such smooth and unchanged surface. It will depend on whether the cancerous masses have ulcerated what condition the finger recognises when it comes into contact with the disease. Frequently we find firm smooth rounded masses of varying size projecting into the bowel on one side or all round. So far as I have observed it is chiefly on the coccygeal surface that they are most commonly placed, and if limited to that aspect so much the better for operative interference. If, on the contrary, they extend up the anterior wall and so involve the urethra or vagina it may be impossible to interfere. When ulceration has taken place the finger passes into a pultaceous mass of blood and slime with tissue that breaks down easily though mixed with harder masses. The withdrawal of the finger is followed by blood, sometimes in considerable quantity, and the pain is usually loudly complained of. More rarely a solitary, sprouting, circumscribed, soft mass is found, when encephaloid disease is present or flat *plaques* are felt lying half buried in the mucous membrane, with smooth or ulcerated spots on their surface. In very rare instances the interior of the bowel is covered with warty fringes, which render it very rough, and which may remain as I have seen for many years (12 in one case which I saw with Dr. Wilson of Greenock) unchanged, though ultimately leading to ulceration, bleeding, stricture, and death.

The finger can hardly confuse internal piles with carcinoma, and a polypus or any other simple growth presents none of the features above described when examined with even moderate care. They are limited, isolated, movable, do not amalgamate with the surrounding structures, have no proneness to ulcerate, cause no cachexia or gland involvement.

Very often in cancer the anus is excoriated and swelled by contact with the discharge. Not unfrequently protruding and sometimes very firm and painful piles exist which result from the straining and the interference with the venous return caused mechanically by the cancer, and it is but too common an error to suppose that the whole ailment is due to "an attack of piles," and so the presence of the cancer is overlooked. The patulous condition of the anus first described by Abraham Collis I have occasionally met with; when the disease was low down in the bowel, but it is not so usual as he supposed.

If a small portion of the growth within the bowel can be removed during the examination, additional evidence of the nature of the growth would be got from the microscope.

So far as I have seen, it is with piles and fistula that cancer of the bowel has been most generally confounded. I have several times known the piles removed by operation under the erroneous idea that they constituted the whole affection. A very advanced case of cancer was lately in the Western in which this error had been made. The patient also suffered greatly from fistulæ. Such openings generally lead to the dilated portion of the bowel above the seat of constriction, and when they are large (as in the female I have referred to) and so allow of a free escape of fæces, they give much relief.

Syphilitic disease occasionally causes a momentary hesitation in its differentiation from cancer. But besides the evidence which the commemorative symptoms and present accompanying signs of the diathesis can convey, there is, what has been already mentioned, the different disposition of the disease within the anus (if it is still active), the less destruction it occasions—the different age at which it is most commonly seen—its lesser degree of hardness—its slow progress, and its amenability to treatment.

An instance of a very curious error lately presented itself to me, and it is not the solitary example of the same mistake to be met with in surgical literature. The backward displacement of the os uteri in a young and healthy woman, causing some mechanical difficulty in defæcation, and the feeling of a hard body in the wall of the bowel when the finger was introduced occasioned grave fears of a malignant growth, which I was asked to remove. A vaginal examination, of course, cleared up the case, and a pessary, afterwards recommended by Prof. Leishman, set matters to right. In some cases the os has even perforated the septum and projected into the bowel.

(*To be continued.*)

CURRENT TOPICS.

University of Glasgow.—List of Degrees for Summer Session, 1885.

Doctors of Medicine (*M.D.*)—Wm. F. Gibb, M.B., Scotland (Thesis—"General Paralysis of the Insane.") John Glaister, M.B., Scotland (Thesis—"An Inquiry into the necessity for Legislative Reform in Scotland in regard to Uncertified Deaths.") Edward F. S. Green, M.B., Newfoundland (Thesis—"Report of two cases of Cerebral Tumour, with an Inquiry into the value of the Symptoms as to Diagnosis.") James C. Herbertson, M.B., Scotland (Thesis—"Typhoid Fever, with five consecutive cases.") John Yule Mackay, M.B., Scotland (Thesis—"The Origin and Development of the Larger Arteries.") Highly commended for Thesis. Peter Maclean, M.B., Scotland (Thesis—"Cases of Epilepsy, with remarks.") Donald Macleod, M.B., Scotland (Thesis—"Alcohol; its Effects.") William Macvie, M.B., Scotland (Thesis—"Atrophic Infantile Paralysis.") Commended for Thesis. James Parker, M.B., Scotland (Thesis—"The Testicle; its arrestment in its migration through the inguinal canal, the diseases it is subject to in that situation, and the method suggested for its restoration to its natural situation.")

Bachelors of Medicine and Masters in Surgery (*M.B. and C.M.*)—Archibald S. Alexander, England; Samuel P. Alexander, Scotland; John Allan, Scotland; W. Carrick Allan, Scotland; Samuel J. Baird, Ireland; Alexander M. Bankier, England; George G. Bannerman, Scotland; Charles W. Bell, Scotland; H. Duncan Browne, Wales; H. Dryden Buchanan, England; John Buchanan, Scotland: William Buchanan, Scotland; William Butchart, M.A., Scotland; J. Wilson Cameron, Scotland; William D. Campbell, England; Quintin Chalmers, Scotland; William W. Christie, Scotland; George M. Connor, Scotland; Charles Court, Scotland; B. Stewart Cowen, Isle of Man; David K. Cross, Scotland; Donald Currie, Scotland; William Downie, M.A., Scotland; James K. Duff, M.A., Singapore; James Dunlop, M.A., Scotland; Henry S. H. Forster, Ireland; John R. Gibson, Scotland; Robert C. Gilroy, Scotland; John Graham, Scotland; William Lewis Gray, England; Adam Hamilton, Scotland; Herbert Hickin, England; John Hogg, Scotland; William J. Holme, England; Joseph Horne, Scotland; John Hughes, Wales; William Huntly, M.A., Scotland; David G. Johnston, Scotland;

William Kirkland, Scotland; J. Begbie Laing, Scotland; George Marshall, Scotland; John Marshall, Scotland; Joseph G. Marshall, Scotland; Alfred E. Miller, Wales; Robert A. Miller, Scotland; Trafford Mitchell, Scotland; David C. Muir, Scotland; William C. C. Muir, Scotland; Alexander Monro, Scotland; James I. M'Arthur, Scotland; James R. R. M'Crindle, Jamaica; John A. Macdonald, Scotland; Alexander M'Kean, Scotland; C. A. Mackechnie, Scotland; John Mackeith, England; John Mackie, Scotland; James N. Maclean, Scotland; John A. Macquarie, Scotland; Charles Mactaggart, M.A., Scotland; Henry J. Neilson, Scotland; John F. Orr, Scotland; James Parker, Scotland; W. W. Paterson, Scotland; Andrew Richmond, Scotland; John Ritchie, Scotland; J. A. Robertson, M.A., Tasmania; James A. Robertson, Australia: David Roxburgh, Scotland; Pramath Nath Roy, India; Thomas Rutherford, B.A., England; Walter Sandeman, England; Joseph Scanlan, Scotland; William M. Semple, Scotland: William Seright, Scotland; J. C. A. Smith, Scotland; Gregory Sprott, Scotland; David H. Storer, Scotland; Charles D. Temple, Scotland; Robert Wallace, Scotland; James Wands, Scotland; James Watson, Portugal; William Watson, Scotland; Charles Whish, Scotland; Andrew Wilson, Scotland; John C. Wright, Scotland; John S. Wright, Scotland; Robert R. Young, Scotland.

The following gentlemen were named as entitled to High Commendation and to Commendation, on account of distinguished merit at the various examinations for the Degrees of M.B. and C.M.:—*I. High Commendation.*—Andrew Wilson. (Mr. Wilson gained the Brunton Memorial Prize of Ten Pounds, awarded to the most distinguished Medical Graduate of the year—1885), Archibald S. Alexander, James R. R. M'Crindle. *II. Commendation.*—Samuel P. Alexander, Wm. M. Huntly, M.A., Wm. Lewis Gray, Charles Mactaggart, M.A., B. Stewart Cowen, James Dunlop, M.A., Joseph Scanlan, J. Wilson Cameron, and John S. Wright.

The Royal Infirmary Appointments.—At the meeting of the Managers, held in the Cashier's office, 30 George Street, on the 11th August last, the vacancies in the visiting staff, caused by the retiral by seniority of Drs. Robert Scott Orr and Ebenezer Watson, were filled up. There were many applicants for both appointments, but the choice of the Directors fell upon Drs. J. Wallace Anderson and W. James Fleming, both gentlemen who have laboured for many years in the medical and surgical departments of the Dispensary respectively. Up till the time of the meeting the greatest uncertainty prevailed in the profession as to how the election was likely to go, the most varied opinions being freely expressed. For the medical appointment Drs. Anderson and Gemmell were generally regarded as the likely candidates, whilst others spoke highly of the chances of Dr. M'Vail. On the surgical side the appointment was by most supposed to lie between Drs. Fleming and Newman, although there were many other applicants, amongst whom may be mentioned the names of Drs. Barlow, Adams, and Muir. Whatever opinion may be held as to the professional merits of the different candidates and their respective abilities to fill the important offices to which they aspired, we think that there can be no other feeling than one of satisfaction at the result of the elections. The principle of promotion as a reward for long and faithful service, when applied with due caution and tact (we would certainly not apply it in every case), is a safe one, and there can be no doubt that it would have been a distinct hardship to the gentlemen who have been successful had their claims been passed over. We are glad also to be able to state that, so far as we have had opportunity of judging, the feeling of satisfaction with which we have referred to the appointments is pretty generally shared in by the profession in the city.

The vacancies which have been caused in the Dispensary Staff will, we understand, be filled up early in the present month.

THE FIFTY-EIGHTH MEETING OF THE SOCIETY OF GERMAN NATURALISTS AND MEDICAL MEN.—We have just received the annual programme of the above Society, which informs us that at Magdeburg last year it was resolved to hold the 1885 meeting in the town of Strassburg. The meeting will begin on Thursday, the 17th September, and extend till Wednesday, the 23rd. The general arrangement of the business seems to be very much after the plan of our own British Medical Association. There are one or two general meetings at which addresses are delivered, but the really important work is done in the various sections which assemble daily during the week. The meetings will be held in the University and in the neighbouring university institutes. While largely a medical gathering, it is by no means exclusively so, and the following list of the different sections will give some idea of the great range of subjects to be discussed:—1. Mathematics and Astronomy. 2. Physics. 3. Chemistry. 4. Pharmaceutical section. 5. Mineralogy and Geology. 6. Geography. 7. Botany. 8. Zoology. 9. Anatomy and Anthropology. 10. Physiology. 11. Pathological Anatomy and General Pathology. 12. Pharmacology. 13. Medicine. 14. Surgery. 15. Gynecology. 16. Diseases of Children. 17. Ophthalmology. 18. Psychology and Neurology. 19. Otology. 20. Laryngology. 21. Hygiene. 22. Military Sanitation. 23. Veterinary Medicine. 24. Agriculture. Besides which, several exhibitions of physiological, medical, and surgical instruments, &c., will be open during the session. According to the programme the greatest numbers of papers are to be read in the medical sections, especially those of medicine and surgery, and in the list of gentlemen who are to take an active part in the business of the Association, either as readers of papers or office-bearers of sections, we recognise the following well known names—Virchow, Hoppe-Seyler, von Recklinghausen, Klebs, Kussmaul, Eichhorst, Erb, Jürgensen, Westphal, &c. The only representative of Great Britain who is to take an active part in the business, so far as we can see, is Professor Roy, of Cambridge, who is down for a paper on the Pathology of Asthma. We have thus endeavoured to give our readers some idea of what is to be done in Strassburg during the present month, and if any of them are to be on holiday in that neighbourhood, we feel sure it would well repay them to spend a day or two in that city during the time of the meeting. Cards entitling gentlemen to attend the meeting are issued at a price of twelve shillings, and may be obtained from Herr Quästor Schmidt, Universitätsgebäude, Strassburg; and the railway companies in the neighbourhood have reduced their fares to those attending the meeting.

During the summer session which has just closed, the VIENNA UNIVERSITY was attended by 5,122 gentlemen, of whom 2,310 were enrolled in the medical faculty. Compared with the preceding year this is an increase of 308, nearly all of which concerns the medical department, whose total is increased by 306.—(*Wien. Med. Wochenschrift.*)

LIST OF CANDIDATES who were successful for appointments as Surgeons in the Medical Staff of Her Majesty's Army at the Competitive Examination in London, on the 10th and following days of August, 1885.—1. M. T. Yarr, 2,980; 2. B. L. Mills, 2,880; 3. L. P. Mumby, 2,880; 4. C. H. Melville, 2,870; 5. J. B. Wilson, 2,810; 6. H. Rayner, 2,765; 7. C. A. Renny, 2,707; 8. R. E. Genge, 2,680; 9. J. Kearney, 2,680;

10. H. Thiele, 2,679; 11. F. A. Saw, 2,625; 12. G. S. Cardew, 2,590; 13. H. Cocks, 2,510; 14. W. J. Lee, 2,500; 15. F. W. Hennessy, 2,475; 16. H. W. M. Kendall, 2,440; 17. J. G. Black, 2,430; H. P. G. Elkington, 2,400; 19. F. W. G. Hall, 2,380; 20. G. S. Tate, 2,380; 21. R. H. Cox, 2,350; 22. A. Kennedy, 2,350; 23. R. C. Gordon-Dill, 2,345; 24. F. T. Skerrett, 2,340; 25. H. M. Ramsay, 2,300; 26. W. B. Stokes, 2,280; 27. J. B. Buchanan, 2,270; 28. D. Simpson, 2,270; 29. E. H. Locker, 2,215; 30. J. Rose, 2,182; 31. J. G. Lovie, 2,180; 32. H. M. Adamson, 2,160; 33. J. H. Corkery, 2,120; 34. W. P. Squire, 2,120; 35. W. R. Crooke, 2,110; 36. C. L. Walsh, 2,110; 37. H. H. Brown, 2,100; 38. S. J. W. Hayman, 2,080; 39. J. P. S. Hayes, 2,070; 40. J. J. O'Donnell, 2,070.

REVIEWS.

The Student's Guide to Diseases of Children. By JAMES FREDERIC GOODHART, M.D., F.R.C.P. London: J. & A. CHURCHILL. 1885.

THIS is a book which can be recommended with confidence, not only to students, but also to practitioners. One of a series of Students' Guides, it is more elaborate than these usually are, containing as it does some 650 pages, or about double the amount of matter in the *Practice of Medicine* of the same series. On every other page it bears evidence of being the outcome of the author's personal observation and experience, and not a mere compilation. It contains, therefore, a considerable amount of original matter; and, not being the offspring of the library easy chair, it is not disfigured by that dogmatism which is so foreign to the good clinical observer. The book is, as far as possible, limited to disease as observed in children. It is well and pleasantly written, although the style is occasionally rather involved.

As an illustration of the way in which the author treats his subjects, we cannot do better than give extracts from his remarks on the pathology of infantile paralysis. "Even allowing the morbid anatomy to be as I have stated, we yet require to know what leads to the disease in the spinal cord—it is still to clinical data that we have to appeal in great measure to support our view of its nature. Now, these data are of two kinds, and seem to point in different directions.

"1st. One class of cases is attended with fever, often high, and the paralysis is at its first onset a *general* paralysis, and, I believe, often associated with pain. This class furnishes a conclusive proof of a central nervous affection, for a general paralysis can hardly be anything else. It is impossible to suppose any sudden general affection of the muscles, or of the peripheral endings of the nerves. It would seem not so very improbable that this initial fever might be the essential disease, and the nervous affection the result of it. Acute febrile conditions are dangerous to the vitality of all tissues, but most of all to the nervous system of a rapidly developing infant. All acute febrile disturbance in infancy is liable to be ushered in by a convulsion, or, what is still more common, by the rigid spasm of arms and legs, fingers and toes, which goes by the name of tetany. This is a not infrequent history of the onset of a case of infantile paralysis, and there is no great improbability in the hypothesis that to some acute febrile disturbance the paralysis is due. But it may, perhaps, be deemed curious that the febrile state should spend its force exclusively on the nerve-cells of the anterior cornua, and be, indeed, but partially distributed amongst them. To such an objection it might in part be replied that the nervous affections of childhood are largely motor disturbances. Children do not complain of pains and aches with anything like the frequency that adults do. Convulsions, spasm, chorea, &c., replace pain in great measure, and one would therefore suppose that, given a cause, acting equally on all parts, those used most, and most sensitive, would most show the results of the working of the cause; and in childhood, therefore, the motor cells would be likely to fail first. But it is unnecessary to adopt this line of argument, because a better is at hand—viz., that the pyrexia does not act solely on the anterior cornua; it acts upon the entire cord, often upon the brain and cord, and thus we have at the onset coma, or a general paralysis and some pain. . . . In the first place, the cause of the affection being a very transitorily acting one, much of the original paralysis generally clears up, and thus in the end only a small lesion in the cord is discoverable. Then the paths of sensory impressions are not strictly localised, like the motor. . . . Minute lesions in such a case would naturally be more difficult to detect, when we have no immediate opportunity of examining the diseased structures, and are, indeed, mostly unable to do so until many months or years after the original affection. . . . It is probable that what seems so apparent is nevertheless not the real state of the case, but that there is a general acute disturbance, inflammation it may be called provisionally, of the entire cord, which rapidly subsides as its cause, pyrexia, subsides, leaving here and there some parts shattered by the storm. The parts most conspicuously affected will naturally be those in which the motor nerve-cells largely congregate, for not only is the motor lesion concentrated while the sensory is not, but the motor function that is destroyed corresponds with an absolute loss of nerve centre, and this entails other secondary consequences of trophic and atrophic character, which must add to the primary lesion. I have only to add that it is by no means uncommon to find some evidences of mental weakness, approaching in one direction or another to imbecility, in the subjects of infantile paralysis, though, perhaps, they occur less often than one might think, if we carefully distinguish between the spinal and cerebral paralyses of childhood. . . .

"2nd. There is, however, another group of cases, in which the evidence of a primary spinal affection, although such an affection is assumed to be existent, does not appear to be by any means so conclusive. There is no evidence of any general paralysis, none, perhaps, of pain. All that can be told of the case is that a loss of power in this limb or that has been noticed quite suddenly. It often happens that we are told, that the child was left playing on the floor for some time, and when taken up was found to be affected, or that it went to bed well and woke up paralysed. . . . Some of them bear so much resemblance to some cases of facial palsy" (*i. e.*, in regard to "sudden onset, rapid loss of faradic contractility, and more or less complete recovery in the space of a few weeks or less") "as seen in adults, that the question of local and not central origin may, I think, occasionally be entertained. . . . It is curiously seldom that facial paralysis is found in childhood, except under other circumstances. But in this, perhaps, we may see in part an illustration of the rule that those parts most subject to use or strain are most liable to break down; in part, perhaps, it is explained by the relative degree of liability to exposure and injury which various parts suffer at different periods of existence. The limbs in children are all movement, uncontrolled movement, and exposed in many cases constantly; as yet the facial nerve, though it is no doubt exposed now, as it is later on, has not become subject to the constant strain involved in the ever-varying phases of expression. Thus, I think, is explained the fact, that children are liable to suffer from local paralysis of limb rather than of face; and it seems possible that, even though the nerves involved be mixed ones, yet the sensory function, suffering less, might be difficult of detection at this age, and the entire trouble thus pass for motor."

The reader will perceive that, however open to criticism this hypothesis of Dr. Goodhart's may be, it is at least ingenious, and contains many suggestive hints as to disease in childhood. Whether he is correct in his classification or not, we cannot say: personally we have seen no cases distinctly corresponding to his first class, and we are, on *a priori* grounds, inclined to view it with doubt, for it is surprising that one meets with comparatively so few cases of infantile paralysis if pyrexia be a sufficient cause of it.

To only one other section of the book would we draw attention—viz., to that dealing with meningitis. Dr. Goodhart considers simple meningitis more common than is generally supposed. Out of forty-one *post-mortem* examinations in cases that would have been looked upon otherwise as tubercular, he found eight cases of simple inflammation. From the description he gives of the appearances found, it is clear that some of these may have been cases of epidemic cerebro-spinal meningitis; and it struck us as strange that there is no mention made anywhere in the book of this disease. Surely Dr. Goodhart does not question its existence, or the fact that it affects the young more frequently than the adult?

The Medical Annual and Practitioner's Index: A Yearly Record of Useful Information on Subjects Relating to the Medical Profession, 1885. London: Henry Kimpton.

For the practitioner this is a handy little volume, containing information on many subjects of general interest and importance, of which the following are a few examples:—Sanitary Memoranda; Medical Education; Health Resorts; Societies; the Year's Work; Books of the Year: Gazetteer; Analysis of Urine, &c. At the end of the volume are blank pages on which notes and memoranda may be made; and the whole is arranged in such a simple way that the desired information can be obtained in a minute. The book is neatly and artistically bound, and will prove a useful adjunct to the consulting room table.

On Sclerosis of the Spinal Cord: including Locomotor Ataxy, Spastic Spinal Paralysis, and other System-Diseases of the Spinal Cord: their Pathology, Symptoms, Diagnosis, and Treatment. By JULIUS ALTHAUS, M.D. London: Longmans & Co. 1885.

THE title of this book is rather misleading, for Dr. Althaus occupies himself mainly with the subject of Locomotor Ataxy. His main object, indeed, seems to be to show that locomotor ataxy can be diagnosed at an early date, before the occurrence of ataxy, that it is almost invariably due to syphilis, and that, therefore, when put under anti-syphilitic treatment early enough, it may be cured. The symptoms that lead to the diagnosis in the pre-ataxic stage are loss of knee-jerk, lightning pains, and reflectory rigidity of the pupil; but, besides these, there may be numerous other symptoms affecting almost every structure in the body. He relies greatly on the loss of the knee-jerk, which he considers (not owing to special observations of his own) to be a true reflex. In order, however, to be pathognomonic, the loss of the knee-jerk must be combined with good voluntary power, a proper faradic response, and idio-muscular contraction of the vastus internus. The proof that the disease is mostly due to syphilis is, that 86·5 per cent of his cases had suffered from it, while the statistics of Erb give 90 per cent. The confidence that the author has in this conclusion will be seen from the following passage—"The period of latency varies from twelve months to twenty-seven years; and a patient, therefore, who has once been syphilitic, cannot consider himself safe from the liability to tabes for the better part of his life afterwards. This fact, *which can no longer be disputed,* involves a serious responsibility on the practitioner who has to treat a patient affected with venereal disease." The treatment recommended is mercury and iodide of potassium, with electricity; silver and ergot are to be used in cases which fail to respond to the specific treatment.

The best part of the book is the chapter on the Symptoms of Locomotor Ataxy. The reader will find there in considerable detail the various symptoms met with, and some shrewd speculations as to their causes, and also as to the *modus operandi* of various remedial agents. It is evident that Dr. Althaus' strong point is clinical experience, and he seems to see that, for he has introduced notes of over eighty cases into his volume, the great majority of which could well have been dispensed with. From the sections on the pathology of the various forms of sclerosis, it is evident that Dr. Althaus has done little himself in the pathological laboratory; but he has carefully perused the works of other men, and it is to this that we owe that theory of ataxy broached by him at the meeting of the British Medical Association in 1884.

The book is readable, but it makes no solid addition to the sum of our knowledge of spinal scleroses.

Zur Einleitung in die Elektrotherapie. Von Dr. C. W. Müller. Wiesbaden: Verlag von J. F. Bergmann. 1885.

The main objects of this book are to emphasize the necessity of measuring the strength of electric currents, to indicate how this can best be done, and to give directions for the best methods of applying electricity in various diseases. The first part, dealing with measurement of currents and the absolute astatic vertical-galvanometer, is rather abstruse. The second part is more practical; and it appears from it that the author takes a very sanguine view of the results to be looked for from electricity in medicine. Among other cases quoted is that of a woman, 47 years of age, on somewhat insufficient grounds said to be the subject of pseudo-hypertrophic muscular paralysis of 40 years' duration, who was very much improved, if not absolutely cured, by the application of electricity in the form of weak currents, of short duration, and frequently repeated. From the favourable result in this case the author is satisfied that the lesion in this disease lies in the trophic centres of the spinal cord. Of other forms of nervous disease equally successful cases are recorded: but they appear to us to be almost too successful.

On Bedside Urine Testing: A Clinical Guide to the Observation of Urine in the Course of Work. By George Oliver, M.D. Lond. Third Edition. Pp. 260.

We have already noticed this work so favourably that it is scarcely necessary to say that we hail with satisfaction the success it has achieved, as evinced by the rapid call for successive editions. We should have nothing further to say on the present occasion were it not for the fact that the former edition was but the germ, as its author remarks, of the one now before us. Besides a description of the author's test-papers for the detection, and also the quantitative estimation of both albumen and sugar, this third edition furnishes us with a clear and practical guide to the observation of nearly every condition of the urine of real clinical significance. The practitioner who follows it may rest satisfied that he has left little to be desired in this field of clinical investigation. We have been much interested in the author's remarks on peptones, and the clinical significance of peptonuria; he gives an excellent summary of the most recent work of various observers, and of the latest opinions entertained on this difficult question. We confess, however, that after some laborious observations, we have not been able to place implicit reliance on the statements of various writers on this subject, nor on the tests which are believed by some to differentiate peptones from other bodies.

But, undoubtedly the most interesting, because altogether novel and original, part of the present edition is that which deals with the author's new peptone test for bile-acids in the urine, and records the results which he has obtained with it. From the author's papers which were lately published in the *Lancet*, we have no doubt that most of our readers are already familiar with this subject. We have tried the new test, and find it of easy application, and have no doubt it will soon come into general use. The physiological and clinical importance of the data already elicited by Dr. Oliver with the help of his new test must be evident to every reader. He finds (and here he corroborates the experiments of Naunyn and Dragendorf), that the bile-salts not only appear in the urine of jaundice, but that minute traces of them occur in perfectly healthy urine. He has ascertained, further, that they are increased in various morbid conditions, as disorders of the spleen and liver unaccompanied by jaundice, also anæmia, hæmoglobinuria, scurvy, and other diseases. The new test opens up a wide field of clinical research which should be cultivated by every practitioner, for it is only by a large body of observers that such results as we are encouraged to look for from it can be gathered in.

A Practical Introduction to Medical Electricity. By A. De Watteville, M.A., M.D., B.Sc. Second edition. London: H. K. Lewis. 1884.

In this work, which is rather a new book than a second edition, the reader will find all that he ought to know about batteries, and their uses in diagnosis and treatment. In the first chapter the subject of electro-physics is fully discussed; in the second, electro-physiology; in the third, electro-diagnosis; and in the fourth, electro-therapeutics. The author very properly insists upon "measurements of current strength as the essential condition of a rational application of electricity to medicine." But it is almost unnecessary to say that this condition is rarely met with in practice. Our students are taught too little of physics, and in our hospitals they do not have the opportunity of becoming practically acquainted with the application of the battery. A student's day is no doubt pretty fully occupied, but the time spent in applying electric treatment in suitable cases in the wards would not be a great tax on any individual student if the cases in a ward were distributed among the clinical clerks. As it is at present, our graduates are able to give the names of a few batteries, which have been shown them at a ward demonstration; but the great majority of them have never applied the battery, and are quite unable to give the necessary instructions should they have occasion to use these instruments in their private practice. These men will find that Dr. de Watteville's book will supply their deficiencies in regard both to physics and to the uses of the battery in medicine. The subject is not a simple one, and as treated in this work the difficulties are not, perhaps, minimised; it requires, therefore, very careful study. To aid the reader numerous illustrations are introduced, and also a great number of experiments in illustration of the laws enunciated. The book, taken as a whole, is one of the best on this subject with which we are acquainted.

A Handbook of the Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., &c. Sixth edition. London: H. K. Lewis. 1885.

IT is only two years since we noted the publication of the fifth edition of this well known text-book, and it may fairly be presumed that this edition will be as popular as its predecessors. The revision has been carefully performed, so that the work is quite up to date. We would suggest, however, in view of future editions, that the index should be enlarged; at present it is decidedly defective. In our last notice of this book it was indicated that a chapter on Insanity was a desideratum. It still remains so. While looking over the chapters on nervous diseases we were surprised to find no mention of athetosis, and that term does not occur in the index. This is an omission which ought to be rectified. In the sections dealing with treatment, Dr. Roberts has noted the more recent remedies employed, and in an appendix the uses of antipyrin and of cocaine are indicated.

NOTES FROM VIENNA.

UNUSUAL CASE OF EXTRA-UTERINE PREGNANCY.—At a meeting of the Society of Physicians of Prag on 5th July, Professor Breisky communicated the following case:—Prof. Breisky was consulted nine years ago by a woman from the country, aged 33, who up to that time had been regular as to her catamenia and otherwise in good health. She had previously given birth to three living children; after the last birth she suffered from profuse *post partum* hæmorrhage. In October 1876 the catamenia became scanty and irregular. She was frequently troubled with sickness and vomiting, causing her to believe that she was again pregnant. The period of delivery she placed in the following July. At Christmas 1876, after some unusual exertion, she was seized suddenly with faintness and abdominal pain; at the same time there was a discharge of bloody mucus by way of the genitals. This attack was at the time said to be due to colic. In January 1877, being the third month of pregnancy, she was seized with another fit, the doctor in attendance finding infiltration of the uterus and slight vaginal discharge. Notwithstanding, the abdomen continued to increase in size, the breasts became turgid, and in February 1877 movements of the fœtus were observed. On 23rd June patient was seized with severe cramps of the bladder, confining her to bed for eight days. From this time all fœtal movements ceased, the abdomen and breasts became smaller, and the discharge from the genitals ceased. Patient meanwhile remained pale, and without appetite, but suffered no pain.

On examination there was found at the pelvic brim, three finger breadths above the pubis and towards the right hypochondrium, a tumour, slightly movable, and yielding fluctuation in many places. No round body resembling the fœtal head could be detected. The uterus was as large as a small apple, and could only to a certain extent be demarcated from the tumour. Palpation through the anterior wall of the vagina gave an outline that corresponded more closely with the uterus than the tumour.

Diagnosis was made of extra uterine, probably secondarily abdominal, pregnancy, a certain amount of calcification being present.

On two occasions subsequently patient suffered from peritoneal irritation and pain in the region of the bladder. In 1883 examination revealed the presence of ischuria, which the patient said was present since 1882. The urine was thick and muddy, but micturition caused no pain. The tumour had become somewhat smaller. The patient's general health was poor, and her colour pale, but her strength was so good that she remained at her employment. Last Whitsunday Prof. Breisky detected evident signs of septicæmia. The urine contained pus, and smelled offensively. On one occasion a doctor observed short hairs like those of a fœtus in the urine. These symptoms indicated rupture of the bladder. The tumour was now as large as two fists, shrunken, immovable, and not sensitive. Percussion gave a tympanitic note, but whether this indicated pus in the intestines or in the sac of the tumour could not be determined.

Treatment at this time was confined to frequently washing out the bladder with carbolic acid. It was evident, however, that the only rational treatment was extirpation of the sac of the tumour. Laparotomy was attended with considerable danger, owing to adhesions of the sac, to its communication with the bladder and to the septic state of the patient.

At the desire of the patient, incision of the abdomen was carried out in the following way:—The abdominal wall was incised below the navel. The peritoneum was incised at first only to a small extent, to ascertain whether adhesions existed between the abdominal wall and the sac, at which spot the contents of the sac might be evacuated. The latter was found free in the greater part of its extent, and its surface was smooth. The parietal layer of the peritoneum was now thoroughly divided, after which adhesions were discovered between the sac and the omentum, the mesentery, and the abdominal wall. The sac of the tumour was next stitched to the edges of the abdominal opening, and then incised. Foul gases escaped, and fœtal remains were removed from the sac by polypus forceps. Finally the sac was washed out with 5 per cent carbolic solution, and packed with iodoform gauze. The dressings were changed as often as required. During the further progress of the case no diffuse peritonitis arose, pain from the abdominal wound was but slight. The latter, however, had a very atonic appearance. The pulse, which before operation was 140, fell immediately afterwards to 120. Speedily, however, symptoms of collapse set in, and the patient died three days later.

Prof. Chiari now described the *post-mortem* examination, made only in reference to the case in question.

No diffuse peritonitis was found, but a circumscribed pus-like exudation was discovered in the left half of the pelvis. This arose apparently from the abdominal incision. Anatomical examination of the pelvis showed that a sac-like body was seated between the upper part of the bladder and the uterus. The sac had been opened anteriorly as much as 7 cm. The anterior aspect of the sac was adherent to the upper surface of the bladder, its upper part was connected to a loop of the ileum, the right aspect with the large omentum and point of the vermiform appendix, and the posterior aspect with the anterior surface of the fundus and upper part of the body of the uterus. This aspect was also loosely adherent to the right broad ligament, and closely united to the left broad ligament. The wall of the sac was 8 mm. thick, and of fibrous consistence. Ulceration was present on its inner surface and numerous chalky deposits were present. The sac contained a small quantity of fluid. Anteriorly, between the cavity of the sac and the upper part of the bladder, there was a fistulous communication large enough to admit a sound. The connection between the sac and the left broad ligament was of this nature:—The left ovary had become closely adherent to the posterior surface of the sac, so as to look like a protuberance of this body. The left ovarian duct, after a course of three cm., penetrated the tumour and opened interiorly on its posterior wall by a minute aperture. The duct was obliterated in its middle third. No further trace of it or of its fimbriated extremity could be found. The uterus appeared larger and the walls thicker than normal. The right duct and ovary were of normal constitution. In the substance of the ovaries were numerous *corpora albicantia.*

Examination of the fœtal remains showed that they formed a complete skeleton of a fœtus near the full period of gestation. Small traces of the soft parts were present as fatty and chalky debris. A portion of skin was seen, with the muscles still adherent, belonging to the anterior part of the neck and thorax. The subcutaneous fat of this portion of skin was present in the form of adipocere. The muscular tissue was of dark colour, and showed its fibrous structure. Microscopical examination showed the muscular cross striping. Here also there were chalky deposits.

Prof. Chiari concluded that this was a case originally of tubal, secondarily of extra-uterine pregnancy. After the death of the fœtus, calcification had set in. In consequence, however, of the fistulous communication with the bladder, ichorous degeneration succeeded to this. The fistulous opening arose probably from pressure exerted by the fœtal remains, owing to the continual contraction of the tissue forming the shrunken sac. This view is strengthened by the presence of a recess on the wall of the sac corresponding to the position of the communication with the bladder.

The foregoing case illustrates that where extra-uterine pregnancy exists, even though calcification may ensue, a fatal result may follow, owing to subsequent ulcerative degeneration of the fœtal body.—*Wien. Med. Wochenschrift.*

MEDICAL ITEMS.

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

The Influence of Cimicifuga Racemosa upon Parturition.—At a meeting of the Chicago Gynæcological Society, held 20th March, 1885, Dr. J. Suydam Knox read a paper with this title, in which, after giving a *résumé* of the medical history of the drug, he related his experience with it in 160 cases of labour, including those of 57 primiparæ and 93 multiparæ. Under its use he had found the average duration of the first stage reduced from 17 hours to $6\frac{1}{4}$ hours, and that of the second stage from 3 hours to $1\frac{3}{4}$ hour, in primiparæ; that of the first stage from 12 hours to 3 hours, and that of the second stage from 1 hour to 27 minutes, in multiparæ. From his obervations he had concluded that the drug has a positively sedative effect on parturient women, quieting reflex irritability, nausea, pruritus, and insomnia; that it mitigated, and often altogether abolished, the neuralgic cramps and irregular pains of the first stage; that it relaxed the soft parts, thus facilitating labour and diminishing the risks of laceration; that it increased the energy and the rhythm of the pains in the second stage; and that, like ergot, it maintained a better contraction of the uterus after delivery. In regard to the latter point, however, it was his habit to give ergot after the expulsion of the head. At first, in his indiscriminate use of the drug, he had caused a few precipitate labours. His method of using cimicifuga was to give 15 minims of the fluid extract in three times that quantity of compound syrup of sarsaparilla, every night for four weeks before the expected labour.—*The New York Medical Journal*, ~~11th April, 1885.—R. S. G.~~

The Etiological Relations between Syphilis and Tabes Dorsalis.—The author's opinion as to the existence of an etiological relation between syphilis and tabes dorsalis was made public several years ago. He is now induced to return to the subject by his observation of two cases possessing more than ordinary interest in connection with it. The first of these came under his care last summer, in the person of a very intelligent merchant of middle age. The ataxic symptoms had made their appearance three or four years before, and were now strongly marked. Although the patient's general strength was undiminished, he could get about only with the aid of a cane, stepping unsteadily with a kind of "spring-halt." When standing with his eyes shut he swayed about heavily. Tendon reflexes entirely absent; single movements jerking and uncontrollable. There were also ischuria, necessitating frequent catheterism, nocturnal enuresis, and complete impotence. Strabismus and diplopia had existed for about six weeks, having preceded the full development of the ataxy. As causal influences in this case, heredity, depressing emotions, and over exertion of the limbs were certainly excluded. The patient could give no history of undue exposure to cold. He was himself inclined to attribute his disorder to sexual excesses, but as these had been confined to the period of youth, and he had been happily married for seventeen years, I was compelled to disagree with him. In 1865, however, he had contracted an indurated chancre. This, as well as another which appeared subsequently in its neighbourhood, had healed in about six weeks under local treatment and the internal administration of mercury. It was not until 1870 that constitutional symptoms began to be noticed. They consisted of ulcers in the nostrils—which occupied two years in healing—a perforation of the nasal septum, and gummata in the face, and constituted the first links in an almost unbroken chain of syphilitic phenomena, which extended over fourteen years. After ten years of this general contamination appeared the precursory signs of what by degrees was developed into a typical form of tabes dorsalis. *The idea of an etiological connection in this case between the specific malady—ultimately so formidable, though so mild at the outset that its earliest manifestations were evidently overlooked—and the disease of the spinal cord is one which must have occurred to any physician.*

The second case possesses greater significance. On the 20th of March last, a journeyman blacksmith, aged 72, presented himself at my clinic. He was in a greatly reduced condition, and exhibited in a marked degree the three characteristic symptoms of restiform degeneration of the posterior cord—viz., *unsteadiness of gait, with disorderly movements; swaying about when the eyes were shut, and abolition of the patellar tendon-reflex.* In addition, his lower extremities were almost insensible to contact, while apparently retaining their perceptions of temperature and pain. The functions of the upper limbs were fully preserved, and the territory of the cerebral nerves had almost escaped invasion. In the sulcus behind the glans penis was a small cicatrix with clear periphery. The lungs and bowels were in an advanced stage of tuberculosis. The following history was elicited:—"Since his apprenticeship the patient has suffered from rheumatism in his limbs, brought on by the exposure incident to his occupation, but during the past twenty years the pains have seldom been experienced. The first symptoms of tabes dorsalis—*numbness and formication of the legs*—date from two years ago. They were soon succeeded by unsteadiness in the dark, with danger of falling; his legs, also, easily became fatigued, and his gait was uncertain in the daytime, so that he was obliged to give up his work. Four years ago, however, as we learned from his former employers, he was able to stand firmly and walk long distances. The lung troubles have lasted a year; abdominal pains with bloody stools, only a few months. Four years ago—*i. e.*, at the age of 68, *he contracted syphilis*, for which he underwent treatment at the Breslau Dispensary for Venereal and Skin Diseases. The Dispensary records show that he was admitted 25th October, 1880, and discharged as cured on the 19th of the following month. 'Diagnosis: Lues; sclerosis; exanthema maculo-papulosum.'" The *post-mortem* examination on the 2nd of last May disclosed, beyond the slightest doubt, a typical degeneration of the posterior columns of the spinal cord.

While not presenting the above case as direct proof of an etiological connection between syphilis and tabes, I would ask whether it does not suggest a forcible warning against wholly excluding the possibility of such connection, as certain prominent authorities have attempted to do? In this patient we have seen that the first decided symptoms of the spinal affection were manifested when he was 70 years old, and a few months later unmistakable ataxic phenomena supervened. The development of tabes dorsalis at so advanced a period of life is an extremely rare occurrence—that is, *when its existence is afterwards anatomically demonstrated.* Every single influence which can give rise to the disease was found to have been inoperative in this instance, until the patient had reached an age which might almost have been supposed to guarantee his exemption. After an attack of intermittent in 1868, he continued in perfect health down to 1880, when he contracted syphilis. Such an accident, occurring to so old a man, naturally gave rise to a suspicion that sexual excesses might have contributed to the final result; but this hypothesis was steadily contradicted by the patient. *Under these circumstances, may we not be justified in regarding an etiological connection between the affection of the posterior cord and the specific disease, contracted three and one-half years before death, as possible, to say the very least?*

The greatly diminished severity of the secondary symptoms in cases of tabes dorsalis with syphilitic antecedents has been noticed by various authors.

The *statistical estimate* which I next proceed to exhibit is based upon one hundred hitherto unpublished cases selected from my clinical records, and including none but unquestionable instances of typical tabes dorsalis, in which the presence or absence of syphilitic antecedents had been thoroughly ascertained. In fourteen out of these one hundred cases, the diagnosis of restiform degeneration of the posterior cord had been confirmed by *post-mortem* examinations, which in five of the fourteen had also established the pre-existence of syphilis. Of the one hundred tabetic patients, forty-three had suffered from secondary symptoms. The mean length of time which elapsed between the onset of syphilis and the earliest ataxic phenomena was about eight and a half years. From a clinical point of view, no difference whatever was discernible between tabes dorsalis in the syphilitic and in the non-syphilitic subjects. Since this disease always depends essentially upon a restiform degeneration of the posterior cord, it would be as unreasonable to expect that its symptoms should vary according to its mode of origin, as to look for a similar difference between cases of cirrhosis of the liver, when due respectively to syphilis and to alcohol. And in neither instance can the non-success of anti-specific treatment be accepted as important evidence.

The above statement is claimed to be the result of careful and scientific scrutiny. Against the valuation which I would place upon it but one plausible objection can be urged—viz., that the total number—100, is too small to warrant a definite conclusion. But many trustworthy observers, more especially Erb, have reported even a higher percentage of syphilis than this among tabetics, while opposing estimates have been founded for the most part upon statistics drawn from an earlier period, when patients were subjected to no special examination as to their syphilitic antecedents. If it be alleged that the 43 per cent of syphilis upon which I rely is no larger a portion than may be found unassociated with tabes, I can point to the result of special investigations showing that, among male subjects at large, between the ages of 25 and 40, both those in good health and those labouring under any kind of disease excepting syphilis, only 12 per cent had ever had the latter. Erb, among 1,200 males over 25, found only 10 per cent of syphilis. This difference appears to me so strongly marked as to render a causal connection between syphilis and tabes exceedingly probable. *Forty-three per cent of secondary syphilis among non-tabetics is a proportion absolutely unheard of in this country.*

I am aware that there are some who deprecate the numerical method as applied to the solution of this important question, and who call for clinical and anatomical proofs. It has been already explained why the former mode of demonstration is not applicable in the present case. Pathological anatomy is also inadequate to its requirements. Microscopical examinations have shown conclusively that there is no such thing as a peculiarly syphilitic affection of the posterior columns. Yet, although specific disease cannot be regarded as a direct cause of the medullary sclerosis, it is very probably etiologically connected with it in another way. It is readily conceivable, and appears in fact to have been proved by recent investigations, that syphilis, which so destructively affects the blood-vessels of the brain, is also not without its influence upon those of the spinal cord. If this be so, the disease will result in lessening the resisting capability of the cord, and perhaps this lessening process may take place before any alteration of the vascular structure is anatomically discoverable. Under such conditions, exposure to cold, excessive fatigue, and other causes which undoubtedly tend to impairment of the cord, will, in many cases, be borne without detriment to the latter owing to slight compensatory changes which take place within its substance. The occurrence of such compensation must largely depend upon a healthy functional condition of the vessels concerned; and thus we see how syphilis may act by rendering the cord more subject to hurtful impressions—in short, by endowing it to some extent with a *specific predisposition.* The lowering effects of syphilis upon the system at large need not here be considered, since many patients in the earlier period of tabes enjoy the fullest constitutional vigour. Since, as we have seen, the spinal cord, in "syphilitic tabes," is not specifically affected in any direct manner, and even in the initial stage of the complaint has already undergone a deep-seated process of degeneration, it is not surprising that anti-syphilitic treatment has shown but little efficacy in this direction. According to my experience, *tabetic patients with atrophy of the optic nerve bear mercury badly.* In other cases, we shall be able to avoid any evil results from the remedy by administering it in strict accordance with constitutional peculiarities. But few "cures" of tabes dorsalis by anti-syphilitic measures are on record. My own practice has yielded only a single instance of the kind. In 1869 a vigorous, florid-looking officer, thirty years of age, was sent to me by my esteemed friend Professor Hermann Kohn. In 1863 he had a chancre, which he described as induration, although he could give no account of secondary symptoms. The sore healed in about six weeks under purely local treatment. When I examined him, he presented a typical case of advanced tabes dorsalis, with very considerable ataxia, and a remarkable diminution of tactile sensibility. Within two months, under galvanism and the use of potassic iodide, he was restored to perfect health, and has since been advanced to a higher military position. Not a solitary trace of locomotor disorder is now to be detected. I have no doubt it would be quite correct to say that a "positive cure" has been effected in this case. Yet I do not not believe that, even here, a sclerosis of the posterior columns was actually removed, but rather that they had been secondarily involved in a syphilitic affection of their meninges, which mimicked very closely almost all the symptoms of tabes.

Since, then, it cannot with absolute certainty be determined from the symptoms alone, in every case of locomotor ataxy apparently connected with syphilis, whether the disease consists in an incurable primary degeneration at the posterior cord, or in a curable disturbance of its functions, resulting from specific lesions, anti-syphilitic treatment of the same will always be in order, unless positively contraindicated in some way.—(OSCAR BERGER, *Deutsche Med. Wochenschrift,* Jan. 1 and 8, 1885.) *Journal of Cutaneous and Venereal Diseases.* June, 1885.

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ORIGINAL ARTICLES.

DARWIN'S DOCTRINE OF EVOLUTION IN EXPLANATION OF THE COMING INTO BEING OF SOME DISEASES.

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Section V.—*The Theory of Evolution in its Application to Pathology as definitely formulated in recent years.*

Since Charles Darwin's great works were published:—(1) *On the Origin of Species* in 1859; and (2) on *The Descent of Man*, twelve years later (1871), we have had our ideas regarding " volution in diseases" much more definitely formulated as a result of the change brought about in almost every realm of thought by this great naturalist.

I would here name especially those whose writings have already suggested much of the argument, and its illustration. They are Mr. Lawson Tait (1869), Dr. G. de Gorrequer Griffiths (1875), Drs. W. G. Collins (1881), W. H. Pearse (1881), Sir James Paget (1882), Mr. Millican (1883), and Mr. Jonathan Hutchinson.

1. A paper by Mr. Lawson Tait,* Fellow of the Anthropological Society of London, and of the Surgical Society of Ireland, contains the following suggestive observations—" In the pre-historic period of the 'stone age,' after struggles for

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**Dublin Quarterly Journal of Medical Science* for Feb., 1869.

existence with his fellow-vertebrates, man began, with stone weapons in his hands, to have struggles to the death with his fellow-men, the like of which we find in no other kind of animal. For this, his weapons increase in effectiveness, his powers of comparison and combination increase, and, while these do so at a slow rate, his powers for killing his fellow-man, and his inclination to do so, are sufficient to confirm the law of survival of the fittest in the struggle for existence.

"Hence we find in the remains of Archaic man few or no traces of disease;" and such traces Mr. Tait concludes are rare, since he has never seen a single instance of diseased bone in the many he has examined for the purpose; nor has he met with a notice of such a circumstance. A skull with appearances of chronic periostitis once came under his notice, which was determined by Mr. Busk to be stalactitic, and not the result of disease.

But when civilisation grew, so that murder and war became less frequent, then the struggle for existence necessitated new conditions of living, *and disease slowly crept in upon mankind; arising as it would from many causes produced in their turn by advancing civilisation and consequent domestication.* Our knowledge of diseases is sufficient to furnish struma and phthisis as examples of how the law necessitates the introduction of disease among civilised animals. Then he quotes the influence of alteration of climate; and that with less war came more pestilence; and with greater civilisation the more terrible disease. As development in domestication advances, there is an increase in the tendency to disease, so that in direct ratio to the degree of domestication is the severity of disease, the average age to which people live, and the number of births. We know it also as a fact, that savage nations are comparatively free from disease until contaminated by a superior race, when all at once the virgin soil is covered by the weeds.

I would, further, especially instance the Fiji islanders in their dreadful experiences of epidemics of measles and hooping-cough, during recent years.

In the very eloquent annual oration to the Medical Society of London,* "On Old Age," Professor Humphrey of Cambridge introduces a similar argument. "Thus, in the economy of Nature, death is swift, and comes early, as soon, at least, as failure of strength renders the animal unable to protect, or provide for, itself; and man, it would seem probable, had no exemption from the sharp, though, on the whole, beneficent

* *Brit. Med. Jour.*, 9th May, 1885.

law of animal life. In early times, when the race was to the physically strongest, when health, and strength, and activity were necessary to provide the hand-to-mouth means of sustenance, and to give defence, when men and animals were much on a par in this and many other respects, early death must have been the common fate, being brought about by climacteric agencies, or by the tooth of the hungry beast, or by the hand of man himself. This, indeed, we still find to be the case among some of the rude races of mankind. But in man was the germ of a better order of things, the germ of sympathy with, of feeling and love for, others; which was besides and above the mere parental instinct, and which was calculated to counteract and over-ride the selfish bent, and to raise man in this, as in some other respects, above the mere animal. This has already done much, and it has still an ample field for future development. Through the growth of this germ, it was given to man to introduce a new factor into the economy of Nature, and, by forethought, by mutual co-operation, and by care for others, which are the very essence, at any rate the very best feature, of civilisation, to prolong life, when, by this very forethought and sympathy, life had become more valuable; and when the prolongation of it had, consequently, become more desirable; and scope was thus afforded for the carrying out of those descending or senile developmental processes which must have been nearly dormant in the earlier periods of human existence.

"It was not to be expected that this good seed should be without a blending with tares; and the scope thus given for the fuller development of the physiological processes gave scope also for the development of the pathological processes, *and enabled the various diseases to spring up and take their course, afflicting not man only, but those animals also which come under his fostering or protecting influence.*

"It may therefore be said that the prolongation of life into and through the periods of decay, and into and through the processes of disease—indeed almost, if not quite, the very existence of decay and disease—are the result of human forethought and sympathy. In other words, decay and disease are, by civilisation, substituted for quick and early death. Without attempting to balance the *pros* and *cons* of this, we know it to be a position from which there is not, and ought not to be, any disposition to recede; and if there were the wish, there is not the possibility. The onward march of civilisation is a necessity, and the onward progress of disease will tend to go with it. But it does remain for forethought and sympathy to narrow the range of the evils they have themselves engendered, or which have sprung up with them; and it is pre-eminently the noble work of our profession to contribute to this—to weed out, and check the growth of, the morbid tares, and to help the good seed to grow on to its full harvest—to prevent, that is, the origin, and to arrest the advance, of disease, and to give to the body the best opportunities for health and longevity. In this great physical work, let it be remembered, we shall not, to any great extent, succeed, unless our efforts be accompanied by equal efforts to carry out the higher and more important work of removing those impurities in the moral atmosphere, for which civilisation has much to answer, and with which the sources and spread of disease are closely—more closely perhaps than we think—associated."

Dr. B. W. Richardson has also recently delivered an address "On the Sanitary Condition of our Houseless and Nomadic Population," in which he tries to show that the purely vagrant class having no home, are rather exempt than otherwise from many of the diseases which affect those who live in more comfortable circumstances. Epidemics of zymotic diseases, and diseases like consumption, are said to be rare in this class; and the individuals of this class seldom appear to be agents in the dissemination of contagion. On the other hand, amongst those who keep a van in which they live and sleep, epidemic diseases are by no means uncommon. Gipsies are constitutionally a healthy race; and so long as they follow their nomadic mode of life they remain comparatively free from the more fatal diseases of the community. And, generally, it may be concluded, that as men began to aggregate in close localities without regard to sanitation, they compared indifferently as regards their health with those who confronted Nature in her wildest moods." Domestication, more than anything else, by overcrowding has always favoured the generation and spread of diseases both amongst men and the lower animals.

2. In 1875, Dr. G. de Gorrequer Griffiths began to call attention to what he believed to be an axiom in pathology—namely, "The Unity of Poison in Disease"—meaning thereby not that the poison is always the same, but that the one poison—the one *origo mali*—whatever it may be, will originate several so-called different affections. This theme he has discussed in several papers in the pages of this *Journal* in 1882, and subsequently in the pages of the *Medical Miscellany* and *Provincial Medical Journal* in 1884 and 1885. He contends that the one *origo mali* may give to different indi-

viduals scarlatina, typhoid, diphtheria, erysipelas, sore throats diarrhœas, sickness, headaches, general malaise, pneumonia, pleurisy, serous inflammations, ulcerative endocarditis, and a vast number of diseases which have been considered distinct and specific, and which have therefore been described as typical or orthodox forms of disease.

The questions for discussion he states as follows:—"If it be contended that these so-called specific diseases require for their production in every instance the application in some way or other of a specific poison, so that no fresh case can arise but from germs or noxious elements emanating from a person affected with the so-called specific ailment (as from the fœcal excreta of a typhoid patient in the case of that fever), so that each stricken person must be preceded by another suffering similarly, I am led to ask—How, then, about the first case? Whence came it? How did it originate?

"That these various symptoms, or grouping of symptoms (to which are given for purposes of distinction the different names mentioned in the previous lines), and many other affections are at times originated *de novo,* and each and all from the same source or sources" is considered by Dr. Griffiths to be "abundantly proved in the experience of every medical man;" and that "since this is proved, therefore also is proved their non-specificity." The relation of the so-called puerperal fever to the infective diseases as illustrated by Sir Spencer Wells in opening a debate at the Obstetric Society in 1875 in London, is quoted to show that "if these diseases" (specific diseases as they are supposed orthodoxically to be), all produce the same result in lying-in women affected by them—namely, puerperal fever of such a form and character that it bears no resemblance to the (specific?) fever, from which there is no doubt it has been contracted, is it not right to suppose that there is a unity of poison which will account for the same? He, moreover, considers that this interchange, intercommunicability, and transmutation proves a unity of poison, in the sense already explained; and that these diseases in their turn are intensified or modified by the puerperal condition.

Dr. Hicks has also further shown (as hospital cases prove) that while various circumstances can set up a malignant fever in puerperal women, which is of so permanent a character that it can be communicated to other pregnant women; we see, on the other hand, that in private practice, when the fever apparently spreads to non-puerperal persons, it becomes reconverted to the zymotic form from which it had originally sprung.

Dr. Griffiths therefore would not call these different affections, but rather the varied and varying expressions of the working in the blood and tissues of the body generally of the *one* poison—the outward and visible signs of the inward evolutions—the extended and extending working of the poison—that poison being one and the same—*originally introduced*, or *wrought in the person's self*, by chemico-physiological changes, such as are daily being generated in health as well as in disease.

We have, then, he contends, unity of poison—differentiation of the resulting phenomena, *i.e.*, symptoms; such differentiation being dependent upon, not a diversity of poison, but a diversity of expression of the action of the poison dependent upon the pabulum or food afforded to the poison agent, and the idiosyncracies of the patients, their habits, surroundings, and numerous circumstances connected with them of which we cannot yet even take an account. This he illustrates by the action of a drug, such as iodide of potassium, during which rashes are developed one after another, vesicular eruptions, pustular rash, fever, head and back ache—transition stages, as it were, from measles even to small-pox!

Another example is seen in dissecting-room cuts from examining cases of peritonitis. One victim will die rapidly from acute blood poisoning; another will have multiple abscesses; another abscesses and pnuemonia, or pleuro-pneumonia; another the same *plus* meningitis, or kidney and liver mischief in more or less acute stages; or pericardiac affection; another with tendency to phthisis may fall into consumption (tubercular) or septicæmic pneumonia.

These examples show a series of developments or evolutions of a *one poison*—the *virus from the cadaver*—which, passing through the dissecting wound into the system, evolutes and develops such evolutions and developments dependent not on any difference in the poisoning agent (which admittedly is one and the same) but upon the idiosyncracy of the patient, a difference in the pabulum which feeds, nourishes, and develops the primal poison—a difference in the soil on which the seeds fall, and *other differences not existing in or pertaining to the poison*, or seed; but in or around (or both) the person in whom is the poison.

This unity and differentiation exists throughout Nature. It is seen that erysipelas is interchangeable in lying-in hospitals with puerperal fever (Playfair); also, that diphtheria and puerperal septicæmia are one and the same (Hicks); moreover, "the association of diphtheria and scarlet fever is not infrequent; and the appearance of diphtheria may be absolutely independent of any pre-existing case" (Broadbent).

Finally, Dr. Griffiths arrives at the conclusion that the ailments which he enumerates at the head of his paper may be generated *de novo*, and from one common source, as well as by direct communication with one already suffering; or by indirect methods, through some secretions, excretions, or through some thing or person that has been in contact or in communication with the sick. Further, he concludes that there are two forms of these diseases. There is, 1st, an orthodox form, or that contracted directly from a previously existing case; 2nd, an unorthodox form, or that generated *de novo* from blood poisoning, such as occurs in puerperal patients and in surgical cases (the "surgical scarlatina" of Sir James Paget) from deleterious matters absorbed or otherwise passed into the blood, and thence into the tissues of the body more or less generally, or from noxious drains, sewers, the imbibition or ingestion of pernicious articles of drink or food—such as tainted water, milk, cream, decomposing animal or vegetable substances. To this form of disease he gives the name toxæmic, to distinguish it, as regards origin, from the orthodox or that contracted from a previously existing case.

Sir William Gull has also stated his belief that diphtheria may "*commence* locally, forming a poison which will propagate itself; and he claims a distinction between diphtheria and diphtheria poison, regarding the disease as beginning with a poison, but sometimes as *commencing locally and forming a poison which propagates itself*." *

Dr. Griffiths further advocates not only the operation of the environments upon the poison itself, but holds that the environments may induce variation, and that they will impress a new character upon the original poison, which will then become a more or less permanent variation, tending towards the evolution of a new series or set of symptoms, and therefore to a new disease. Thus, he believes that new diseases are being, as it were, in daily process of evolution — new "quantities," "agencies," or "factors," unknown to our forefathers, being the cause of such evolution. He shows how the existence of certain dieases illustrates his argument—more especially "the existence of diphtheria and typhoid fever," as described by Dr. Paget of Cambridge,† and by the late Dr. Stokes of Dublin; also the occurrence of cases of diphtheria intermingled with mumps, so that as the diphtheria outbreak subsided mumps became more prevalent.

As further evidence of the changes and various influences of one poison, he quotes the following narrative by Sir James Paget* from Professor Huxley's experience, which is all the more significant inasmuch as all the patients were in as nearly as possible the same circumstances:—

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* *Brit. Med. Journal*, 3rd May, 1879, p. 666.

† *Ibid.*, 14th July, 1883, p. 67.

"One of the crew of H.M.S. *Rattlesnake*, after slightly wounding his hand with a beef-bone, had suppuration of the axillary lymphatic glands, with which typhoid symptoms and delirium were associated, and proved fatal. His illness began the day after the crew left Sydney, where all the crew had been remarkably healthy. A few days after his death, a sailor who washed his clothes had similar symptoms of disease in the axilla, and for four or five months he suffered with sloughings of portions of the areolar tissue of the axilla, arm and trunk on the same side. Near the same time a third sailor had diffuse inflammation and sloughing in the axilla; and after this the disease ran, *in various forms*, through the ship's company, between 30 and 40 of whom were sometimes on the sick list at once. Some had diffuse cellular inflammation, some had inflammation of the lymphatic glands of the head, axilla, or lower extremities; one had severe idiopathic erysipelas of the head and neck; another had phlegmonous erysipelas of hand and arm after an accidental wound; others had low fever, with or without enlargement of glands. Finally the disease took the form of mumps, which affected almost everybody on board. The epidemic lasted from May to June. The ship was at sea the whole time, and, in the greater part of it, in the intense cold of a southern winter."

Here is, indeed, a wide range of maladies eventuating in an epidemic of mumps in a variety of persons, and apparently evolved out of the inward evolutions of one poison whence all the various symptoms proceeded.

The argument is still further carried out by examples of "progressive evolution," in which, passing from the benign or mild to the malignant or more severe, cases occur in which the initial or commencing disease may be of the simplest or mildest form; but from it will be evolved cases of a more severe degree, and so on till so many evolutions take place that the maximum degree of intensity is arrived at in the most virulent and malignant type of disease. Or, from the very first, the evolutions may be more and more complex, from the involvement of organ after organ, till the highest point of complexity is reached—the latest evolution being either the most virulent form of the original malady hitherto known, or a distinctly new disease—that is, a new set of symptoms which have never before been manifested. The capacity of minor or apparently trivial sore throats in families of young children to breed malignant diphtheria ought never to be forgotten or lost sight of.

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* *Surgical Pathology*, 3rd ed., p. 373.

An arrest in this process of evolution is also to be seen in many diseases, as, for example, in scarlet fever, when it is said to be "suppressed" or not fully developed. It is well known that as its evolution goes on in an epidemic, so there is progressiveness in its virulence; but from the most simple or least well expressed cases—cases of so-called "suppressed scarlet fever"—it is often seen that scarlatina of the severest type may be produced, as well as many other affections or sets of symptoms usually considered to be entirely out of the range of the scarlet fever circle, diseases usually considered to be separate and entirely distinct. Hence, when scarlatina has become rife in a school, and the unaffected having been sent away, some boys (who have never been in communication with the infected, or, at least, have been free from the manifestation of symptoms) get "sore nose" or "sore eyes;" these, after every precaution as regards disinfection even to destruction of clothing and complete disinfection of their bodies, return home, and in it there will break out "sore noses," "sore eyes," and scarlatina, or scarlatina and a number of other affections more or less severe, and varying in intensity, thereby acknowledging a common ancestry. And rising, as it were, in the scale of evolution, scarlatina may in a variety of persons originate and cause the development of most malignant typhoid, puerperal fever, or diphtheria; or may cause the evolution of nephritis, pleuritis, pneumonia, or pleuro-pneumonia, without the expression of any scarlatinal symptoms whatever.

Again, scarlatina has been known to occur repeatedly in houses *associated with other cases of septic poisoning, clearly traceable to sanitary defects; and it is not unfrequently a drain disease* (Mahomed);* and after the first heterogenetic case has so arisen, this form becomes transmissible, and may then spread, as does the orthodox form—that is, by contagion or infection, or both.

This view of causation demands a revision of medical nomenclature accordingly. Thus, the disease may spread by contact directly with or exposure to the poison pre-existing in another or a previous case. Such is the *orthodox* form. But besides this form of the disease there is another which may originate from drains or from some source other than that covered by the term orthodox, and that it thus originates a form of scarlatina *de novo*. Such cases may arise *autogenetically* in some instances and *heterogenetically* in others. Thus, cases of scarlatina may be arranged under three classes:—

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* Harveian Society Discussion on Scarlatinas. Medical Journals, *passim* 3rd April to 15th May, 1884.

(1.) *Orthodox*, that is, the form admitted universally by the profession as propagated by infection or contagion, or both, from pre-existing cases.

(2.) *Autogenetic* cases, which are those begotten, conceived, and bred—that is, evolved in and by the patient. Under this class comes puerperal scarlatina, originating in and proceeding from some offending influence, some *materies morbi* in the parturient track; and certain cases of surgical scarlet fever where a *sepsis* is evolved from the wound and passes thence into the system, *scarlatinising* the system throughout; and those in which the general manifestations show themselves primarily, the wound afterwards evincing evidences of this general disturbance.

(3.) *Heterogenetic cases* are those in which the condition of the patient is produced by a *sepsis* outside the person, such as when the disease is evolved *de novo* from foul drains, W.C.'s, and such like sources of insanitariness; from drinking foul water (such as the foul waters in the Egyptian camps, like Ismalia), decomposing fluids and such like; and from eating "high,"—that is, decomposing rotten game. To this latter custom, especially among the upper classes, is due some of the prevalence of diarrhœa, typhoid, scarlatina, diphtheria, fevers, and more ailments than perhaps is at present suspected.

The nomenclature here suggested by Dr. Griffiths may also hold good in a multiplicity of diseases such as puerperal, typhoid, diphtheria, diarrhœa, dysentery, cholera, and various fevers. He refers to a series of cases related by Mr. Mason in illustration of the spontaneous development of disease occurring in the same house, in which a child died in four days from hæmorrhagic scarlatina, the nurse suffered from severe diphtheritic throat, and the father from severe erysipelas before the dead body of the child had been removed. Inspection did not reveal any insanitary condition in the house itself; but decaying vegetable refuse was discovered in the area vaults. Moreover, cases of scarlatina are often observed to precede those of diphtheria; and throat illnesses of various degrees to precede the first undoubted case of diphtheria; and widespread, apparently trivial sore throats are apt to be unnoticed and unrecorded.

3. Dr. W. H. Pearse,* of Plymouth, gives instances of evolution of epidemics and of alliances of some diseases; and is of opinion that the alliances of diseases which appear to be different, such as scarlet fever and measles, have a greater place in nature than have their specific differences; and also, that the so-called "germ" and poison theories of disease will form minor parts in a greater theory of evolution.

4. A very important letter in the *Lancet* † by W. J. Collins, M.D., and B.Sc., of the London University, in which he inquires —"How far our commonly accepted notions of specificity in disease should be modified by the doctrine of evolution; which he observes has hitherto made but a feeble impression on medical science and pathology"—gave a fresh impetus to inquiries on this subject.

5. Sir James Paget's very interesting Bradshawe Lecture, "On Some Rare and New Diseases," given at the Royal College of Surgeons of England, on 13th December, 1882, ‡ is a most valuable contribution. In this suggestive lecture he seeks to illustrate a part of the natural history of diseases—too little studied—namely, that part which relates to "the *variations and combinations of diseases in hereditary transmission.*" He especially deals with those diseases hitherto classed as "constitutional" or "diathetic" diseases, in which the disease or the predisposition to it is, "inborn" or "inbred."

6. In 1883 a small but interesting work was published by Kenneth Wm. Millican, B.A., (Cantab), Fellow of the Medical Society of London, on *The Evolution of Morbid Germs*, in which he ingeniously, and with much originality of method, carries out the application of the Darwinian doctrine of the origin of species, as affecting pathogenic organisms. He assumes that germs in the form of bacteria or bacilli are the causes or agents of infection of the specific diseases, and he believes that "given a change of environment acting successively upon *a certain scarlet fever germ and its offspring, for say 1,000 generations* (*of that germ*) *may succeed by the end of that period* (*in bacteria representing about a fortnight*) *in impressing a very marked change of character upon the race of bacteria;* . . . so as to succeed eventually in ultimately transmitting (say) diphtheria in place of scarlet fever." And he specially insists upon the fact that the perceptible workings of the law of evolution are a matter of *successive generations* (of bacteria); and that *the time occupied will*

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* *Medical Times and Gazette*, Sept. 1881.

† Of 14th May, 1881.

‡ The various medical newspapers of the 16th December.

vary with the duration of individual life (of these bacteria), and the rapidity of their reproduction; and that time with such "*existences*" is not measured by years but by generations."

But it is premature to assume as proven the causal agency of such like germs. "To study on broad biological principles these forms, and to find out, if possible, their real relation (if any) to any given disease, the cycle of their lives, and their behaviour under a variety of superinduced changes, is the task with which the pathologist is now charged. But completeness, and thereafter accuracy of final results cannot be certainly obtained without a comprehensive knowledge of the entire group of bacteria, and the absence of this knowledge is a serious impediment to understanding the complete morphology of such forms as may *prove* "specific" in the pathogenic and in the septic series. To trace their life histories, and especially the variations to which they may be subject under altered surroundings, is of the utmost importance. Minute and prolific as these organisms are, time must be an essential element in their vital mutations; and they may yet prove to be subject to "variation" of an important kind "under domestication." The law of variation is as operative to-day as ever, and the rapidity with which generation succeeds generation in these lowly and minute forms, certainly promotes the chance of variation and survival. It is, therefore, conceivable that changes may happen which it is of the utmost importance for us to know." * As yet, however, we have no thorough knowledge of the life history of any of these organisms; and therefore the complete specificity of any one of them is not yet established. Those we know most about, appear to be merely putrefactive organisms, like the cholera "comma" bacillus of Koch, and his tubercle bacillus also, both of which appear to be merely incidentally present in the diseases with which they have been associated.

7.. On 28th February, 1884, Dr. W. J. Collins amplified the topics of his letter in the *Lancet*, already quoted, in a paper which he read to the Abernethian Society of St. Bartholemew's Hospital. † In it he brings forward an array of cases and facts in favour of a modification of our present notions of specificity in disease, based on Darwin's doctrine of evolution.

Our ideas, therefore, on this interesting subject are being slowly but surely consolidated and formulated *themselves*, through a process of evolution and development through many minds and many generations. In this we have an example of how Darwin's teaching explains the development of human knowledge itself—how by it our knowledge grows as the ordinary every day experience of mankind becomes more and more extended in course of time.

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* W. H. Dallagen, *Contemporary Review*, March, 1885, p. 450.

† "*Specificity and Evolution in Disease.*" By W. J. Collins, M.D., B.S., B.Sc., Lond., 1884.

But there is this difference between the evolution of diseases in Nature and the evolution of our knowledge of them. The evolution of diseases in Nature results in forms of disease which are new, and which did not exist before; the evolution of our knowledge of diseases results in the perception of laws regarding them already in existence, but unknown to Science.* Hence it is necessary in this inquiry to distinguish between diseases which are really new, and such as only seem to be so, but which undoubtedly have been in existence, though not previously recognised and differentiated from others. But there can be no doubt that if medical men will exercise their powers of observation in the direction which Darwin's views suggest, there will eventually be brought together abundant evidence in favour of his theory of evolution being able to explain the "coming into being" of new diseases.

(*To be continued.*)

SOME OF THE EFFECTS OF THE WINTER CLIMATE OF THE HIGH ALPS.

By FRANCIS HENDERSON, M.D.

Being invalided last winter, I was advised to spend some months at one of the Alpine health resorts. Of these, there are Davos, Wiesen, St. Moritz, and the Maloja to choose from, and, after reading Dr. Tucker Wise's book,† in which he describes the arrangements of the new Kursaal at the latter place, I decided to go there. My subsequent experience satisfied me that I had made a right selection. The special features of the Hotel Kursaal are its spaciousness and the perfection of the heating and ventilation. All the public rooms, corridors, and bedrooms are heated by warm air charged with a certain amount of moisture. Each bedroom has a separate shaft, so that its occupant can regulate the amount of heat. By another shaft, to which there is an opening at the floor level and also at the ceiling, the room can be perfectly ventilated. Those interested will find full details of the construction in Dr. Wise's book.

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* Compare Dr. Temple in *Bampton Lectures*, 1884, p. 127.

† *The Alpine Winter Cure.* By A. T. Tucker Wise, M.D., &c.

Ventilation is, of course, highly important everywhere, but in these cold climates it is more important as well as more difficult. The expense of fuel naturally induces an unwillingness to let warm air escape, while the outside air, especially at night, is so cold that it is not easy to admit it without causing a too sudden lowering of the temperature.

The Maloja Kursaal is situated at the south end of the Lake of Sils, in the midst of magnificent mountain scenery, at the highest part of the Engadine.

It is not my intention to enlarge on the characteristics of an Alpine winter, its meteorological phenomena, its enjoyments and amusements, or its drawbacks. These have already been fully described by many writers, both professional and lay. I can fully endorse all that has been said about the unique beauty of the finest days—the brilliancy of the sky, the transparency of the atmosphere, the powerful sunshine reflected from the sparkling snow, the exceeding stillness and the impressive serenity of the scene. These influences combine to excite novel and most pleasurable sensations, which can hardly fail to produce, upon the majority of invalids, salutary results. My principal object in writing this paper is to call attention to some of the physical or physico-physiological effects of residence in this remarkable climate. I shall arrange what I have to say under the following heads:—

I. The effects of diminished atmospheric pressure upon the organs of circulation and upon the distribution of the blood.

II. The effects of diminished atmospheric pressure upon the lungs and upon the movements of respiration.

III. The remarkable absence of the *sensation* of cold with such a low thermometer.

IV. The paucity of air germs, and the effects.

This opens an extensive field, but I need hardly say that I shall make no attempt at an exhaustive discussion; my remarks are offered merely as a contribution to the subject.

I. *The effects of atmospheric pressure upon the organs of circulation and upon the distribution of the blood.*—At 6,000 feet, which is the height above the sea of the Maloja plateau, there is a diminution of about 3 lbs. of pressure upon the square inch of surface, equal, it has been calculated, to a loss of about three tons upon an average man. It is undoubtedly very remarkable that there is so very little change in the sensations from the removal of such a weight, but the resulting effects upon the bodily mechanism are not on that account less real or important. There are at least two consequences of the loss of atmospheric pressure.

First.—Less force will be required to propel the blood through the blood-vessels. This will diminish the work of the ventricles.

Second.—The superficial blood-vessels will be more affected by the loss of pressure than those deep-seated; consequently the surface of the body, as well as the lungs, will be better supplied with blood.

It is quite conceivable that this disturbance in the distribution of the blood might be *completely* corrected by vaso-motor adjustments, but an examination of the sphygmograms annexed will, I think, prove that in point of fact this does not take place.

The sphygmograms, No. 1 and No. 4, at 6,000 feet, exhibit in a marked degree the signs of loss of tension—striking development of the percussion wave, great breadth of trace, with fall of the base line. * I think it will be admitted that the loss of tension is due to increased freedom of circulation in the capillaries from relaxation of their walls, and that this denotes a larger amount of blood in the part. And again, as capillary resistance and consequent high arterial tension cause cardiac hypertrophy by inducing over-work of the heart, we are warranted in concluding that the very opposite condition, viz., greatly diminished tension, must lessen the labour of the central organ.

Further evidence that there is a larger supply of blood at the surface of the body is afforded by an observation which I made on several persons, that after residing for some time at these altitudes, the face became decidedly fuller and redder. In some, the increased fullness or swelling was sufficient to produce a change in the expression. That this was not owing to a gain in flesh was proved by its rapid disappearance on

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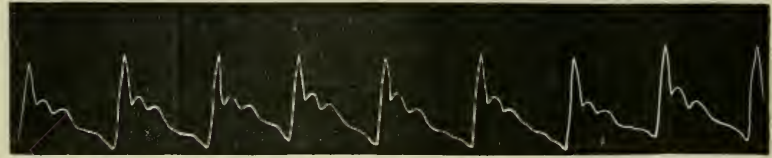
* The pressure selected in each case is that which brings out best the *elements of the trace* at 6,000 feet. The sphygmograms show the pulse of A. B., and also of C. D. to be rather quicker at the low level, but this, I think, depends on accidental causes. I made a series of sphygmograms at different pressures from several other persons at the Maloja, but unfortunately the arrangements which had been made for completing the series by low level tracings were unavoidably broken through. All these tracings exhibit a great development of the *percussion wave.*

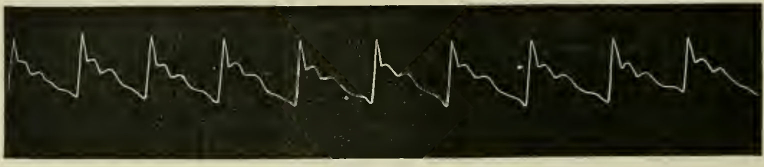
1.—At 6,000 feet, after 4 months' residence.

A. B. (æt. 41). Pressure, 2½ oz.



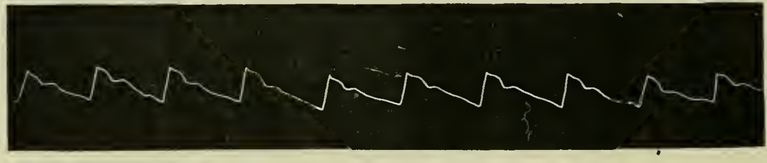
2.—At 2,800 feet, after 6 weeks' residence.

A. B. Pressure, 2½ oz.



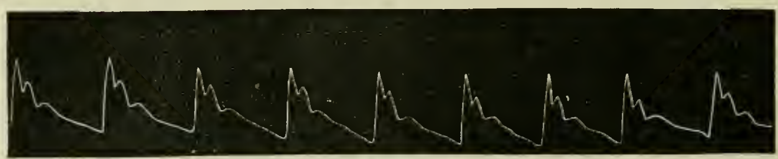
3.—At 100 feet, 2 months after leaving the Alps.

A. B. Pressure, 2½ oz.



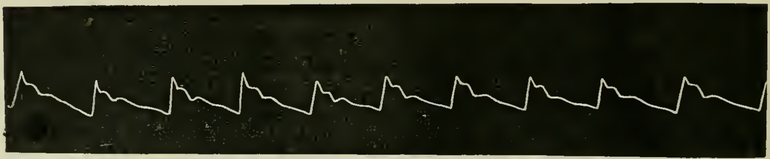
4.—At 6,000 feet, after 4 months' residence.

C. D. (æt. 46). Pressure, 3 oz.



5.—At 100 feet, 3 months after leaving the Alps.

C. D. Pressure, 3 oz.



leaving the mountains.* I observe that Dr. Denison, of Denver, states that persons residing in high altitudes have generally a florid complexion, and I believe this is the same observation. Of course, this fuller and more florid countenance must be distinguished from the effects of sunburning, which owing to the powerful rays of the sun falling directly, and also reflected from the snow, is very common.

Another proof of the blood accumulating on the surface of the body from loss of atmospheric pressure, is the hæmorrhage which is apt to occur from the eyes or nose or ears during balloon ascents or in climbing lofty mountains.

This increased amount of blood on the surface of the body, as well as in the lungs, as the result of diminished atmospheric pressure, suggests a number of interesting questions. Is there therefore less blood in deep seated organs? To what relative degree is the tension of the deep seated arteries diminished? What is the effect on the function of different organs of diminished blood and diminished tension? How can these altered conditions be utilised therapeutically? Careful and long continued observations alone can answer these questions. In this direction I have nothing to contribute, but of the general effect of diminished atmospheric pressure in lessening the force needed to propel the blood through the vessels and so relieving the work of the heart, an example presented itself which is worthy of record. One of the patients who was at the Maloja last winter had, it so happened, been previously under my observation, so that I was well acquainted with his case. He was middle-aged, and for a considerable time had had intermissions of the pulse associated with weak action of the heart. During the previous six months intermissions were very frequent, sometimes as much as one in twenty beats. A few days after his arrival at this high altitude, the intermissions entirely ceased. During his residence there for four months they never returned and up to the present time (August) according to the latest report, they have not been again observed. Now, the possibility that this was owing to increased nervous energy—a result of the bracing air—is excluded by the circumstance that, immediately on arrival, this patient had an attack of illness which confined him to bed and reduced his strength considerably. The previous long continuance of intermissions and their sudden cessation under the above circumstances, point to the immediate cause being physical, as distinguished from physiological, and this cause was, without doubt, diminished capillary resistance, and, consequently, diminished cardiac exertion. From the fact that the intermissions did not return after descending to low levels, and are still absent, one may infer that the heart has gained sufficient strength to resist yielding to a bad habit which had been broken off with the help of lessened work.

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* *Rocky Mountain Health Resorts.* By Chas. Denison, A.M., M.D. Second edition, p. 91.

Before making sphygmographic tracings at the Maloja, and *seeing* the great alteration of tension in the radial artery, and thus more fully appreciating the great freedom of circulation in the capillaries of the skin from loss of atmospheric pressure, I was inclined to attribute the cessation of intermissions in the above case to increased inspiration, due to the rarity of the air. Such an increase would naturally facilitate the return of the venous blood to the right side of the heart, thereby lessen the resistance in the capillaries, lower the arterial tension, and thus relieve the left ventricle. Those accustomed to work with the sphygmograph must have often observed the effect of inspiration upon the pulse, particularly if the heart is not strong, how holding in the breath makes the base line of the tracing rise, and how it at once falls if one or two full inspirations are taken.

Now, however, that I am better aquainted with the conditions present, it seems to me certain, that at 6,000 feet the diminished pressure upon the capillaries of the skin and lungs must exercise a far greater influence in relieving the work of the heart than could result from very much deepened inspiratory movements. Besides, further study of the subject, as I shall presently explain, makes me uncertain whether the volume of air inspired at these altitudes is increased, or as much increased as I at first supposed.

This case suggests a new therapeutic use of residence at high altitudes. The heart can never enjoy the curative influence of rest, but lessened effort, even for a few months, may do much in some cases to repair the effect of overstrain, and recuperate its nervous and muscular energy. In advancing life, or where there was reason to suspect degeneration of the vascular coats, it would not, of course, be prudent to make trial of this remedy.

II. *The effects of diminished atmospheric pressure upon the lungs and upon the movements of respiration.*—The walls of the pulmonary air-cells are as regards atmospheric pressure quite as superficial as the skin, and as the blood-vessels of the latter have been shown to contain more blood in consequence of loss of pressure, it may be inferred that those of the lungs are in a similar condition. It is well known that the lungs of the inhabitants of cold climates contain more blood than those of the inhabitants of the tropics.[*] This is attributed to the respiratory functions being more active in cold regions. Now, in loss of atmospheric pressure we find an additional factor in producing a larger supply of blood in the lungs, a factor which must increase in importance with the altitude. Even at 6,000 feet its influence must be very decided. This appears when we remember the immense extent of the pulmonary surface, directly exposed to the air—a surface which Lieberkühn has computed to be 1,400 square feet—when we consider the great elasticity and distensile character of the lung tissue and also its great vascularity, and when we estimate the force in operation by the alteration on the radial tracings, and the visible changes in the skin. One effect of the larger supply of blood in the lungs will probably be to improve their nutrition. It might be supposed that in the case of diseased lungs another effect would be to increase the risk of hæmoptysis, but this does not seem to be borne out by experience.[†]

In addition to these important changes in the lungs, due to rarefied air, we have to consider the changes which take place in the respiratory movements. At 6,000 feet the atmosphere loses about one-fifth of its weight, so that to inhale the same amount of air by weight one would require to take into the lungs about one-fifth more in volume. In a person with sound lungs, when at rest, I can scarcely think that the increase is so great, that is, after a period of residence, when the blood and the lungs have had sufficient time to adjust themselves to the thinner air. Most of the writers consider that there is a decided increase in the volume of air inspired either by quickening or deepening of the breathing. Others seem doubtful. I observe that Dr. Hermann Weber, in his Croonian Lectures at the Royal College of Physicians, says, "I am less certain with regard to the view that a diminished quantity of oxygen, contained in a given quantity of air, leads to the inspiration of a larger volume of air, and, through this, to a greater expansion of the lungs and thorax. . . . I am not quite prepared to say that this view is incorrect." *

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[*] Parke's *Practical Hygiene.* Sixth edition. P. 424.

[†] Since writing the above I have had the opportunity of reading the views of Professor Jaccoud of Paris on this subject. He holds that the effect of diminished atmospheric pressure is greatly to increase the blood in the superficial parts, causing thereby the internal organs to be "in a condition of relative anæmia," and among the internal organs in this condition he *includes the lungs*, and explains the good results of the high altitude treatment of phthisis, and in particular the rarity of hæmoptysis, upon this hypothesis. To my mind this view is quite untenable. *Pulmonary Phthisis.* By Prof. Jaccoud; translated by Dr. Lubbock. 1885.

The late Dr. Angus Smith, from his extensive experimental investigations, concluded that "the inspiration is not affected sensibly by a small, or even by a considerable, diminution of oxygen, when the place of that gas is not taken up by others of a noxious character." † Dr. Smith quotes Liebig and other authorities as having obtained similar results. If it is so, that the blood can absorb as much oxygen as it requires from thinner air, an important argument is suggested against there being much increase in the volume inspired at these altitudes. The respiratory movements are normally so adjusted that all the blood in the body is exposed to the air within a certain period of time. Now, if the result of diminished atmospheric pressure is, that much more than the normal quantity of blood is constantly present in the lungs and freely circulating, and if at the same time the respiratory movements are so increased that the air inhaled with each breath is one-fifth more in volume, what will be the result? Is it not very certain that an excess of aeration or oxidation would soon take place? In such a case, a reduction in frequency or depth of the respiratory movements would immediately follow.

My personal experience was that for two or three days after reaching the Maloja, the sensation of a want of air induced an occasional voluntary deep breath, but after that time, when at rest, this want was not experienced. My impression was, however, that the inspiratory movements had become somewhat deeper. The thoracic walls appeared to be more raised at inspiration, and there was more expansion and elevation of the upper ribs. The number of the respirations was not increased (14-15) nor was the rate of pulse appreciably altered. ‡ Even after prolonged residence, ascending stairs caused a return of the sensation of the want of air and a voluntary long breath. This, I believe, was the general experience. I observed too (others did also) that a fall of half

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* "The Hygienic and Climatic Treatment of Chronic Pulmonary Phthisis." *British Medical Journal*, 1885. P. 690.

† *Air and Rain.* Dr. R. Angus Smith, p. 191.

‡ In this connection it is well to note that the increased number of respirations and pulsations of the heart, diminished *spirometric capacity*, &c., observed during balloon ascents and after climbing high mountains, are the records of the *immediate* disturbances caused by change of level; they cannot be taken as giving any indication of the conditions established after the wonderful powers of adaptation with which the body is endowed, have had full time to complete the work of adjustment.

an inch in the barometer, which often preceded a fall of snow, renewed, for a time, the feeling of deficiency of air.

As regards the enlargement of the chest, this has been shown by numerous measurements to be the rule at these elevations. I think that all the writers agree that this occurs to some extent. But although this is admitted, it does not follow that the volume of air inspired is greater than that at low levels, because the larger amount of blood in the lungs must increase their bulk, and, therefore, to allow the normal amount of air to be taken into the lungs, the thoracic capacity must be increased beyond the normal.

The question then is, are the increased chest measurements greater than the increased bulk of the lungs accounts for? A series of careful spirometric observations would settle this point. The spirometer should be used upon persons with sound lungs and in sound health before ascending the mountains —several times during residence—immediately after descent, and again some weeks or months later. These observations should be combined on each occasion with accurate chest and abdominal measurements (to estimate the amount of diaphragmatic breathing,) and with weighing of the individual to check any loss or gain of flesh, which might invalidate the measurements. If a sufficiently extensive series of observations were carried out, not only would the volume of the air inspired be determined but an estimate would be possible of the increase of blood in the lungs caused by altitude. It is obvious that phthisical patients would be unsuitable subjects for these observations. Emphysema on the one hand, and consolidations on the other, would introduce too many complications.

Regarding the all important practical question, What is the value of high altitudes in the treatment of phthisis? I regret very much that I can say nothing from personal observation, as I had no opportunity of examining cases of this disease. But from what I know of the experience of others, and particularly from what I have myself seen of the character of the climate and the conditions of life, I should expect good results in properly selected cases. With present knowledge I would rank the purity of the air out of doors and the purity of the air indoors, as is secured by the excellent arrangements of the Maloja Kursaal (of the hotels and pensions at other places I have no experience) as the agency of first importance in the Alpine cure.

III. *The remarkable absence of the* sensation *of cold with such a low thermometer.*—This is the universal experience of all who have resided in these regions, and is a matter of continual surprise to those who reflect upon the causes of such phenomena. At the Maloja last winter none of the gentlemen who were not invalids wore overcoats (except for sleigh-driving). They would pass from an indoor temperature of 55° or 60° Fah., to one of 20° or even 10° Fah., without experiencing any desire to put on extra clothing, and this when the sky was covered with clouds or after sunset. This is a very remarkable fact, and I think it has not yet received complete explanation.

To an American gentleman of spare habit and not robust, who was accustomed to the winter of New York, it remained an unsolved problem, why it was impossible for him to wear even a thin overcoat when the thermometer was 20° Fah. or more below the freezing point. This gentleman wore moderate flannel underclothing, a flannel shirt, a tweed suit of medium thickness, no gloves nor any sort of extra covering out of doors, whatever the weather might be. I mention his case not as an exception, but as an example.

That cold is so little felt in this climate is commonly attributed to the extreme *dryness of the air*. If we ask for further explanation, some authorities tell us it is because cold air, if *dry*, does not conduct or convey heat from the body so rapidly as even less cold air if *moist*. And even allowing for a greater loss of heat in dry air by evaporation, still the total loss of heat, they hold, is less than in moist air. This does not appear a very satisfactory explanation, particularly as the capacity for heat of aqueous vapour, and of dry air, is stated by chemists not to differ widely. But this view of the question is made more intelligible by Dr. Frankland. He says "the absence of suspended watery particles in the air (of these Alpine climates) has no doubt very considerable influence in preventing the chilling of the skin; not only are such liquid particles present when there is no visible fog, but they often exist in great numbers, when the air possesses its usual transparent appearance." *

Now, although it is very probable that dryness of the air, in the manner indicated, may contribute towards diminishing the sensation of cold, it appears to me, that cold dry air produces this result more by its physiological effects than by its inferiority as an abstractor of heat from the body. Cold dry air, if not excessive, has a stimulating and tonic effect. It stimulates the respiratory functions, and thereby increases certain chemico-vital changes. Under its influence both the muscular and nervous system exhibit greater energy, and no doubt, more rapid modifications are excited in those nerve-centres which regulate the heat production and distribution, and adjust them to external conditions.

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* *Experimental Researches in Pure, Applied, and Physical Chemistry.* By Dr. Frankland, p. 996.

In Scotland an atmosphere saturated at 35° Fah. excites, as we all know, a most penetrating and disagreeable sensation of cold. If then, a fall of five or ten degrees of temperature occur, with a consequent precipitation of moisture, we are most conscious of an agreeable change; not only do we *feel* cold less, but we experience an increased activity both of body and mind.* This lessened feeling of cold is not due to a diminished loss of heat, but to increased production—one of the results of the stimulation of the vital processes. That this is the correct view appears, if we consider that dry cold only produces pleasant effects when the individual has a reserve supply of vital force to be drawn upon. If, as in exhausted and aged persons, this does not exist, cold dry air will rapidly abstract animal heat and prove most injurious.

But in whatever way *dryness of the air* affects the body, it is not, I think, of itself sufficient to explain the remarkable absence of the sensation of cold. This is apparent from the following consideration. Sometimes the air of these Alpine climates is *saturated*, and this condition is occasionally combined with fog—that is, watery particles in suspension. On these occasions there is certainly a very appreciable feeling of dampness in the air, but one's sensations of cold are not greatly heightened thereby; certainly not to a degree requiring additional clothing.

That the importance of this observation as an argument may not be overestimated, it is necessary to state that on these occasions (when the air is saturated) the temperature is usually not very low; † and further, it should be remembered that although air at this temperature is *saturated*, this implies only a small amount of *absolute* humidity.

In conclusion, on this point, I would remark that the effects of atmospheric humidity, even from a meteorological standpoint, are difficult to understand; for example, its apparent contradictory effect upon radiation and diathermancy.‡ This being so, it is not a matter of wonder that the influence of dryness or moisture upon a complex organism like the human body is not easily determined.

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* It should not be lost sight of, that organic matter is precipitated with the moisture, and in the words of the late Dr. Angus Smith, "We owe our discomfort to organic matter." (*Air and Rain.*)

† In Dr. Tucker Wise's *Meteorological Observations at the Maloja* for the winter 1883-84, *saturation* is recorded on fourteen days in the four months. The average temperature at the times of saturation was 21·7° Fah.

‡ See Buchan's *Handbook of Meteorology*, Section 167. One might suppose that the solar thermometer (black bulb *in vacuo*) would rise

Two other important circumstances greatly lessen the feeling of cold in the high Alps—sunshine and calm air.

The large amount of warm sunshine is undoubtedly an invaluable element of the climate. Not only does the invalid enjoy the indefinable vitalising influence of the sun's rays, but his powers of heat production are thereby economised, and he is thus able to remain much longer out of doors. Again, calmness of the air is of great importance. Indeed, if strong winds at this low temperature were constant, or even very prevalent, they would rapidly break down all the lines of defence which protect one from cold, and life would be unendurable. But neither sunshine nor calm air explains the question we are considering, for they are not *constant*, and this remarkable absence of the sensation of cold is *at all times* observable. Persons who are not invalids go out of doors on cloudy days, and also after sunset, without extra clothing, and, it may be added, a moderate breeze is less felt than an equal wind of the same temperature coming over snow, is felt at home; it may be sharply cold, but it is not so penetrating.

These considerations point to there being some other cause why the cold of an Alpine winter is so little felt; and, further, that this cause is one which is constantly in operation, and that it is something outside the range of our common experience, otherwise it would not occasion general surprise.

The explanation is, I believe, to be found in the much larger amount of blood in the surface of the body, resulting from diminished atmospheric pressure. The impression of cold is thereby blunted; the pinched and shrivelled condition of the skin which one would expect to see does not present itself, because the body becomes unconsciously clothed with a thicker and closer mantle of warm blood.

The sphygmographic and other proof that there is a larger amount of blood on the surface has been already given, and the fact itself is admitted by most writers, but I am not aware that this most important and interesting result of this condition, has been previously pointed out. This additional reason why cold is so little felt in high altitudes did not occur

highest when the moisture in the air is least, and when, therefore, *diathermancy* might be expected to be greatest. But this is not always so. An examination of Dr. Wise's *Meteorological Tables* shows that the solar thermometer is sometimes very high when the air is not far from saturation point.

to me until after returning from the Alps, when the striking alteration in the pulse tracings led me to appreciate the great changes that take place in the distribution of the blood, and to reflect upon the effects of these changes. I may mention here another observation which I now think to be partly explained by the increased amount of blood on the surface. In this country in winter, I find 65° Fah. a comfortable temperature for a sitting-room, but at the Maloja, if the thermometer rose above 55° Fah., I immediately took means to cool down the room, and I learned that my experience was not singular. It must not be supposed that I consider the increased supply of blood on the surface to be the chief cause of the absence of the sensation of cold, but it is an additional reason, and one that is peculiar to high altitudes.

In a Canadian winter, dryness of the air, strong sunshine, and great calmness, combine to produce the same remarkable absence of the feeling of cold, but as far as I can ascertain, persons require warmer clothing than in the Alps. This difference is, I think, to be attributed to the fact, that at high altitudes, the larger amount of blood on the surface of the body supplies an additional protection against the impression of cold.

IV. *The paucity of air germs and the effects.*—The fact that the number of air germs decreases as we ascend is proved by the recent experimental researches of Miguel, of the Observatoire de Mont Souris, near Paris. At 2,000 metres (that is, 500 feet above the height of the Maloja), he found in 10 cubic metres no bacteria, while in the park of Mont Souris, in the same volume of air, there were 7,600.* We were prepared for such a result by Professor Tyndall's old experiments, which proved that when air is entirely protected from all disturbing influences in a closed chamber, its floating particles so completely settle down, that the track of a beam of light passed through the chamber is not visible. If this occurs at ordinary levels, it is clear that at 6,000 feet, where the atmosphere has lost one-fifth of its weight, the solid air particles will only float with difficulty.

In winter, in the high Alps, there are other conditions which tend to make and to keep the atmosphere free from all sorts of particulate matter. The escape of emanations from the soil is arrested by the early setting in of frost, and very soon the whole surface of the ground is covered to a considerable depth with snow, and at intervals during the succeeding months the air is further purified by heavy snowfalls. The atmosphere of the high Alps is notoriously pure and transparent at all times, but sometimes one can observe a still clearer shining after snow. I remember one occasion when there had been a heavy fall of snow, which lasted for three days, that on the afternoon of the third day, the snow suddenly ceased and a rapid clearing up took place, the clouds quickly dispersed, and the landscape lighted up by a powerful sun, stood out in indescribable brightness. The sharpened outlines of the mountains, the greater definition of their rocky precipices and the apparent abolishment of distance, served as evidence that even Alpine air can be rendered more transparent by being filtered through a thick and prolonged stream of snowflakes.

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* *British Medical Journal*, 1885. P. 688.

It is not by any means implied that this increased transparency was mainly due to the separation of germinal particles. There might also be some smoke and other kinds of dust, which latter is known to be carried by wind from great distances, and there certainly would be water, in the condition of vapour, or in the vesicular or crystalline form. Dr. Frankland observed, at Davos, that the atmosphere was often full of minute ice-crystals, which could be easily seen in some lights. These, when present, will lessen the transparency of the air.

One effect of the paucity of germs in the air of the high Alps, is the great rarity of catarrhs and "colds." When they do occur, there is good reason to believe that they are not contracted so often out of doors as within the dwelling, and are caused by defective house-drainage, or ventilation, or both. At the Maloja last winter, not one of the visitors suffered from catarrh, although several assured me that if they had been at home they would have had two or three attacks in the course of the winter. One of the visitors stated to me that he had had two or three chills which, in England, would have developed into "colds," but, to his surprise, they came to nothing. This experience was corroborated by that of others. To me, this statement was of great interest, confirming, as it did, an opinion that I have held for several years, viz., that cold is not of itself adequate to excite catarrh or other forms of so-called "cold," that it is only one of two factors which must act in conjunction. Cold is merely a *determining cause* of disease. By lowering the vital resistance of a part or of the whole system, it gives opportunity to the common germs, which are in constant contact with the mucous membranes and are unceasingly entering our bodies with every breath, as well as with food and water, to assert their presence and power. This is not the place to discuss this question at length, but I would refer those interested in the subject to an article "On the Rationale of Cold as a Cause of Disease," in which I have stated the arguments in favour of this opinion. *

That catarrhs, under proper sanitary arrangements, hardly ever occur in the high Alps, must not be overlooked in estimating the advantages of the climate in the treatment of phthisis. We are all agreed as to the great importance of avoiding catarrhal affections of the air passages in this disease. No doubt irritations which excite catarrhal inflammation sometimes proceed from within the lungs themselves, in connection with the softening of tubercles, but catarrhal affections often take origin also from without, in atmospheric conditions and changes, and if a phthisical invalid can escape these dangers, it is no small gain.

Another effect of the paucity of air germs is, that ulcers and cavities in the lungs are likely to heal more rapidly. The value of aseptic or nearly aseptic air in promoting cicatrisation is now universally admitted. It must not be lost sight of, however, that if invalids are crowded together in the same dwelling, or even in the same locality, the purity of the air will be seriously impaired. So objectionable, for this reason, are populous communities, in Dr. Weber's opinion, that in his recent lectures, he advises that hotels and pensions for the winter-cure should be scattered over various parts of the Grisons, where suitable sites can be found.

Other effects of the paucity of air germs on the working of the bodily functions are doubtless numerous and profound, but the subject is one which has scarcely emerged from the region of speculation. When air germs are greatly in excess of the normal quantity, they exercise a depressing effect upon human life, and lead up to malarial forms of disease; and when there is a great deficiency, we may surely infer that the matter is not one of indifference, but that the consequences will be advantageous or the reverse, according to the needs of the individual who is brought under this influence.

Researches into the quantity of air germs in different localities are already being made, and it cannot be doubted that they will be quickly followed by differentiation of the quality, and by estimations of the relative proportions of the various kinds, in the air of different places. Then may we expect the way to be prepared for great advances in etiology, and for laying the foundation of climatic therapeutics upon a more scientific basis.

Before concluding this paper, I desire to draw particular attention to the great caution which, in the case of sensitive

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* *Glas. Med. Jour.*, Oct., 1881.

invalids, requires to be exercised in making the descent from the Alps at the end of the winter season. Some of the writers refer to this matter, but the warning cannot be too often repeated.

As the invalid descends into the valleys, he exchanges a dry, bracing, and germless atmosphere for one which is comparatively moist and relaxing, and which is charged with germ-laden exhalations which the recent thaw has released from the soil. Moreover, the ever increasing weight of the atmosphere presses the blood from the surface of the body into the deeper parts. He thus *unconsciously* loses, perhaps in the course of a few hours, those surroundings which protected him from the injurious effects of cold. Further, he is thrown off his guard by the signs of spring and the disappearance of the snow. Under these circumstances, the risk of taking cold is *very great*, and I think all invalids should be specially warned of the danger, and advised not to diminish but on the contrary to increase their clothing as they descend—not to travel in an open conveyance—not to expose themselves to wind, which they could easily bear at the high altitudes, and, in short, for a good many days, to keep more indoors and use greater precautions against catching cold than from their experience of their powers of resistance they might regard as necessary. On such a point to be forewarned is to be forearmed.

LECTURE ON APHONIA, OR LOSS OF VOICE CONSEQUENT ON LARYNGEAL DISEASE, WITH ILLUSTRATIVE CASES (*Continued*).

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(*Delivered at the Glasgow Royal Infirmary during the Summer Session of 1885.*)

Until now we have been considering cases of aphonia arising either from some mechanical interference with the action of the vocal cords, or consequent upon a lesion of one or other of the nerves supplying the larynx. While the great majority of cases may be referred to these causes, a few instances will no doubt come under your observation in practice where none of the lesions which I have described till the present can be found on laryngoscopic examination.

In order that a vocal sound may be produced, it is requisite that the column of air in the trachea be subjected to a certain pressure. The amount of this pressure may be easily ascertained by the following experiment, which I performed, some years ago, upon two patients who had their tracheas opened by me on account of disease of the larynx. When the larynx was restored to its normal condition there was introduced into the air-passage a tracheotomy tube, with an opening in its convex aspect, so that the expired air might either pass upwards through the glottis or forwards through the tube. To the external opening of the tracheal tube, a flexible india-rubber tube was connected, and carried to a water-manometer, so that the pressure of the air within the trachea during phonation might be accurately ascertained.

This experiment I repeated upon two patients—the one a man aged 35, the other a girl aged 15 years. In the case of the former, when he spoke at the top of his voice, a pressure of 40 inches of water was indicated by the manometer. In the latter case, under similar circumstances, the water was raised 28 inches. During ordinary conversation the pressure in the trachea of the man was equal to a column of water 6½ inches high, while in the girl it was only 4½ inches. When the man sounded the note E the pressure was raised to 10 inches, and to 7 inches when the girl sounded the same note. Lower notes were found to require less pressure than high ones. To produce the note A, the vocal cords of the male patient required a force equal to 7½ inches and those of the girl 5½ inches. When the pressure was suddenly diminished by allowing a portion of the air to escape through a T tube fixed to the manometer, no vocal sound was produced, and the patients were able to speak only in a whisper. In the man, when the pressure was reduced below three inches (water manometer) the cords failed to vibrate.

You can now easily understand why it is that in patients, suffering from wounds of the neck in which the windpipe is opened below the vocal cords, the pressure of the air in the trachea is reduced, and aphonia results from failure in vibration of the cords. In these cases, however, if the lips of the wound be drawn together, or the opening be closed with the finger, the power to produce vocal sounds may be temporarily regained.

When the force of the current of expired air is reduced below a certain point, the cords fail to vibrate and the voice is lost. Aphonia from this cause may arise in two ways, either from some interference with the exit of air through the trachea, or from a diminution of the expiratory force from general weakness, or from insufficient inspiration. The former condition may be due to the pressure of tumours or aneurisms; or may be the result of stenosis of the trachea. In the case of syphilitic disease, which I have just shown you, the inflammatory changes extend down the trachea almost to the level of the supra-sternal notch. At the present time, as you may see by the laryngoscope, the narrowing of the trachea is not marked, but, I have little doubt that, if this man lives for a few years, the calibre of the tube will be diminished by a contraction of the inflammatory tissue; and although the conditions which you observe to-day do not interfere with the free entrance and exit of air to and from the lungs, the narrowing of the canal, which will follow upon the lesion you have seen, will lead to tracheal dyspnœa.

In cases, however, where the vocal cords are not injured, even although there may be considerable narrowing of the trachea from thickening or contraction of its walls, the voice may remain clear although feeble.

Compression of the trachea from without may be occasioned by aneurism of the aorta, enlargement of the thyroid gland, tumours in the neck, enlargement of the cervical glands, &c.; these conditions, however, seldom lead to aphonia unless they involve the laryngeal nerves, or interfere directly with the movements of the parts concerned in the production of voice.

As I stated to you a few moments ago, the voice may become feeble or temporarily null on account of want of force in the expiratory act. Thus, we find in cases of phthisis pulmonalis, of extreme anæmia, or other diseases associated with debility, the force of the current of expired air is very feeble, so weak, indeed, that it fails to vibrate the cords unless the patient makes a special effort.

It is not necessary for me to enlarge further on this subject at present. I only desire to direct your attention to the fact that a certain amount of pressure (probably sufficient to raise a column of water four inches), is required to produce a vocal sound, and that under certain circumstances aphonia may arise from inability on the part of the patient to produce this pressure.

In the classification which I submitted to you at the beginning of the lecture, I included cases of aphonia arising from the administration of certain toxic agents. I did so simply to draw your attention to the fact that some substances, which may be used as drugs, act specially upon the larynx. For example, mercury, antimony, zinc, copper, and arsenic, may cause marked inflammatory changes, while lead poisoning is not uncommonly associated with paralysis of the abductor muscles: and it is a fact worthy of note that in the latter condition the adductors have seldom or never their action impaired, just as in the forearm the flexor muscles are seldom paralysed in cases of wrist-drop.

In last lecture I dwelt at some length upon paralysis of the muscles of the larynx from disease of the nervous system; and I have delayed till the present the discussion of certain cases in which, as far as can be ascertained, there is no lesion in the nervous system, nor mechanical interference, to which the arrested movements of the vocal cords can be attributed. Such cases have been described under the term myopathic aphonia. There are undoubtedly objections to the use of this term, from the fact that it indicates the lesion to be limited to the muscles themselves. We know that in this form of paralysis fatty degeneration and atrophy of the sarcous elements is very common; nevertheless, it is likely that the disease is not primarily muscular, but that although not recognised during life, or even after death, there is in reality some lesion of the laryngeal nerves. This is a question upon which I cannot at present enter, as it involves the whole discussion, whether or not paralysis of a muscle or of a set of muscles may occur independently of disease of the nervous system. Opinion is still divided on this subject. Seeing, however, that the term is generally employed, I shall use it with the reservation that I do not wish you to accept it as an established fact that the disease is primarily muscular and independent of a nervous lesion.

Functional aphonia is most frequently associated with hysteria, in which instance usually the abductor muscles fail to act; but in a few cases the paralysis may be limited to one side, or to the crico-thyroid muscles. In the latter condition, even although the vocal cords come together, the patient is unable to produce a vocal sound from want of tension of these ligaments.

The following case, at present attending the out-door department for diseases of the throat, illustrates very well hysterical aphonia. The patient, 18 years of age, is of pale complexion, with symptoms of chlorosis and hysteria.

A careful examination of the neck and upper portion of the chest failed to reveal anything abnormal further than a faint V. S. murmur over the aortic valves. The lungs were strictly normal; the spleen, however, was slightly enlarged, the pulse feeble, and numbered 80 per minute. The patient stated that five weeks ago, when she awoke in the morning, she found herself unable to speak; and loss of voice continued for about a week, when the voice suddenly recovered itself, continuing, however, feebler than under ordinary circumstances. Until a fortnight ago she was able to speak tolerably well, but at that time she again suddenly became aphonic, and has not yet recovered the power of speech. On examination it was found that both vocal cords were paralysed, the right one more completely than the left. The mucous membrane of the larynx was very pale in colour, but beyond the paralysis there was nothing abnormal to be seen on laryngoscopic examination. When the patient attempted to say "A," the vocal cords responded only very slightly; but, while she was unable to phonate voluntarily, reflex action, such as coughing, produced a laryngeal sound. The patient never had any occasion to over-exert her voice, nor had she suffered at any time from inflammatory or other disease of the larynx. This case was evidently one of simple functional aphonia, and probably the patient, when appropriate treatment is adopted, will recover her voice completely. In this particular case both the cords were paralysed, and failed to respond during attempted phonation.

I may now describe to you another form of functional aphonia, and will illustrate it by a case which occurred in my own practice a short time ago. A young lady, 19 years of age, was brought to me and gave the following history. Three months ago she became hoarse, but was still able to sound notes of low pitch; her voice gradually became gruff, and was occasionally completely suppressed. She appeared to be perfectly healthy in all respects, with the exception that she suffered from slight anæmia and amenorrhea. She stated that before the hoarseness set in she had been exposed to a draught of cold air, which she blamed for producing the change in her voice. On placing the finger over the neck I found that the crico-thyroid muscle failed to contract during phonation. There were, however, no evidences of anæsthesia of any part of the pharynx or larynx; and on laryngoscopic examination the glottis was seen to close during vocalization, but the cords were not properly put upon the stretch, and formed the wavy outline so characteristic of paralysis of the external tensors.

This is an example of interference with the action of the crico-thyroid muscle, without any other evidences of interference with the function of the superior laryngeal nerve; and I think we may therefore presume that either the disease was myopathic in its origin, or else the nerve lesion was strictly limited to the twigs of nerve supplying these muscles. During phonation the vocal cords approached one another, and retired during inspiration, proving that there was neither complete nor incomplete paralysis of the recurrent laryngeal nerve; but that the interference with the normal action indispensable to the emission of a vocal sound was limited to the tensor muscles of the larynx; and the fact that the cricoid and thyroid cartilages did not approach one another during phonation, showed clearly that the crico-thyroid muscles were at fault.

Besides being associated with hysteria, myopathic aphonia may be caused by a contusion of the muscles. It can be easily understood how liable the muscles of the larynx are, particularly the external muscles, to injury from such causes. I met with a very good example of aphonia arising from direct injury in the case of a young man who came to the hospital last winter. He informed me that a few nights previously he had been struck across the neck with a stick during a street brawl, and that within 48 hours after receiving the injury, he lost his voice almost entirely. Unfortunately, on account of the difficulty I had in making a laryngoscopic examination, I was unable to determine the precise condition of matters; and as the patient did not return after his second visit, I was never able to satisfy myself on this point. I have no doubt, however, from the nature of the accident and the symptoms of the case, that the aphonia was due to the blow which he received.

Dr. Beverley Robinson has recorded two cases, and Dr. Hopper one case, where aphonia was caused by injury. In Dr. Hopper's case, the patient fell against the edge of a shelf, striking the larynx above the level of the crico-thyroid membrane a little to the left of the middle line. Twelve hours after the accident he could only speak in a whisper. There was no pain or dyspnœa. Spontaneous improvement took place in about a week, and in two months he could speak in a strong voice, the pitch of which was permanently lowered.

Direct injury is not, however, a common cause of loss of speech. A form of myopathic aphonia frequently met with is that which results from over-exertion of the voice, or the abuse of alcohol. Public speakers, especially clergymen, who have formed the habit of speaking in an unnatural voice, very often suffer from this complaint. In the hysterical aphonia, on the other hand, the patient may lose the power of articulating, and even the lips and tongue may remain immobile when the patient makes an attempt to speak; whereas, in other forms of myopathic aphonia, for example those arising from injury, exposure to cold, over-exertion of the voice, &c., the interference with function is limited to one or two muscles.

Before passing to the consideration of treatment, I would like to make a few general remarks regarding the diagnosis of the causes of aphonia.

Cases in which there is some mechanical interference with the action of the arytenoid cartilages, or of the movements of the vocal cords, are easily diagnosed by a laryngoscopic examination. It is not therefore necessary for me to allude to them further than I have done in the early part of this lecture; but I may say a word or two so that you may be assisted in separating cases of aphonia consequent upon nervous lesions from those where the loss of voice arises from functional rather than organic disturbance.

Excluding cases in which the loss of voice is due to interference with the force of the current of expired air (these only require to be known in order to be recognised), those most important to be distinguished from one another are functional aphonia and aphonia due to lesions of the nerves, giving rise to either spasm or paralysis.

Bilateral paralysis of the adductors is, in the great majority of cases, functional, and not due to any organic lesion of the nerves. Cases are upon record, however, in which bilateral paralysis of the recurrent laryngeal nerves arose from cancer of the œsophagus or of the thyroid gland, enlargement of cervical glands, or aneurism of the aorta. It may also be due to disease of the medulla, or arise from destruction of the fibres of the pneumogastric nerve. In my first lecture, I considered these cases fully, and I only wish now to remind you that, in order to eliminate such cases as those I have just mentioned, it is necessary to make a careful examination of the upper part of the thorax and neck, for the purpose of discovering whether or not there is any condition which may give rise to pressure on the inferior laryngeal nerves. When the aphonia is due to pressure upon the nerves, or to central disease, it is usually slow in development, constantly present, and progressive. The paralysis is not limited to the larynx, and is co-existent with other evidences of neurotic disease; whereas, functional aphonia is, as a rule, intermittent, sudden in its onset, and not uncommonly associated with loss of power of articulation; and, moreover, while the voluntary power of phonation is lost, the cough, or other semi-involuntary acts, are associated with a laryngeal sound.

In paralysis of the recurrent laryngeal nerves, the abductors are involved to a greater extent than the adductors, but in some cases the cords are found to be fixed in the cadaveric position, and neither respond during inspiration nor when phonation is attempted. Spasm of the glottis, arising from tonic contraction of the adductors, must be separated from bilateral paralysis of the abductors. The former condition seldom lasts long, is usually absent during sleep, and the tension of the cords varies from time to time; at one moment giving rise to great dyspnœa, while at other times breathing is comparatively easy.

An anchylosis in the position of deep inspiration might look exactly like a paralysis of the crico-arytenoideus lateralis muscle; an anchylosis in the cadaveric position like a paralysis of the entire recurrent laryngeal nerve; an anchylosis in the phonatory position, like a paralysis of the posterior crico-arytenoid muscle. The diagnosis of the two latter conditions, namely, bilateral paralysis of the posterior crico-arytenoid muscles, from bilateral anchylosis in the phonatory position—is by no means easy; they present the same appearances on laryngoscopic examination, but they are essentially different in their pathology and treatment. In most instances the effects of treatment aid one in forming a correct opinion as to the character of the disease, but in other instances the true nature of the case will only be apparent at a *post-mortem* examination.

In the course of this and the preceding lecture I have narrated cases illustrative of the diseases which I wished to bring under your notice; and in doing so I have on several occasions told you the treatment necessary for the cure of the disease.

Perhaps the most convenient way to consider treatment in general would be for us to divide the cases into two classes—1st—Those instances in which the aphonia is associated with structural disease of the larynx; and 2nd—Those in which the movements of the larynx are prevented only by inaction of the muscles. It is quite apparent to all of you that if there is any tumour, foreign body, inflammatory deposit, or cicatrix interfering with the action of the vocal cords, these must be removed before there can be any hope of restoring the voice. I shall not, however, occupy your time by describing the operative procedure necessary in such cases, as I trust at a future lecture to have an opportunity of discussing them in detail. In cases where the approximation of the cords is prevented by a thickening of the intra-arytenoid fold, probably the best treatment you can adopt is, in the first instance, to try the effect of astringent applications, such as perchloride of iron (ʒi to ℥i), or sulphate of zinc (xx grs. to ℥i) applied every second day by the laryngeal douche or brush. After being used for a fortnight or so, the applications may be reduced in frequency according to circumstances. However, should this treatment not produce any marked effect upon the indurated tissue, and should the voice still continue weak or suppressed, the thickened fold should be cauterised by means of the laryngeal galvano-cautery, and as soon as the slough separates and the granulation tissue contracts, the voice will become stronger on account of the cords coming more accurately in contact with one another.

I may now, gentlemen, say a few words regarding the treatment of mechanical impediments to the functions of the crico-arytenoid articulation. When the cords are fixed in the phonatory position, the life of the patient may be in constant danger from the stenosis; dilatation of the glottis should be first attempted, but if this fails tracheotomy should be performed. When the cords are so fixed, aphonia is not as a rule a prominent symptom, it is when the cartilages are bound down to the side of the larynx that the voice is lost.

When true anchylosis has existed for years there is little hope of improving matters, and in such cases it is only when serious respiratory troubles are to be feared that active treatment is justifiable. In some instances Schrötter's hollow bougies should be methodically used; or if tracheotomy has been previously performed, tubes or bougies may be introduced from below through an opening on the convex aspect of the tracheotomy tube.

In patients suffering from aphonia arising from interference with the force of the current of expired air, the loss of voice is usually of secondary importance. I shall not, therefore, delay you by discussing the treatment of such cases. The treatment of aphonia clericorum I discussed fully in a former lecture, and then pointed out to you the various advantages of astringent applications, stimulants, and electricity, so that it is not now requisite that I should repeat what I then said. I may, therefore, pass at once to the treatment of aphonia associated with nerve lesions.

Paralysis of the vocal cords arising from disease involving the medulla oblongata, the spinal accessory, or the pneumogastric nerves, requires to be treated according to the character of the primary disease. If due to syphilis, iodide of potassium should be administered; while if the cords be fixed in the middle line through paralysis of the abductors, tracheotomy may be called for in order to save the patient's life. Should the paralysis arise from a lesion of the superior laryngeal nerve, the danger of food passing into the trachea must be avoided, by introducing an œsophageal tube beyond the upper limits of the larynx; and at the same time the functions of the paralysed parts should be stimulated by the local application of galvanism, and the internal administration of strychnia, iron, and quinine. In passing the œsophageal tube, care must be taken that it does not enter the larynx, an accident which may readily happen on account of the anæsthesia of the upper air passages. The possibility of such an accident only requires to be kept in mind to be avoided.

In the treatment of unilateral paralysis the remedies must be selected according to the exigencies of each case. When the disease arises from permanent causes, such as from the pressure of aneurisms or mediastinal tumours, local treatment is of little or no avail. But if the cause be transitory, then the application of electricity to the paralysed muscles, and the administration of constitutional remedies may have beneficial effects.

I will devote the remaining moments at my disposal to calling your attention to the treatment of myopathic aphonia. In the first place, if the abductors be paralysed, and if there be great dyspnœa, the sooner tracheotomy is performed the better. Beyond the recognition of the necessity for this operation, the treatment of the paralysis is the same as when the adductors are involved, the approximate cause of the disease being, of course, duly considered. When the paralysis is associated with hysteria, general constitutional remedies should be prescribed; every effort should be made to draw the attention of the patient from her illness, and to develop the faculty of self-control. She should be carefully watched and guided away from self, but at the same time she should not be led to suppose that any one considers her peculiar. The bodily health should be carefully attended to, and special attention devoted to diet, exercise, recreation, study, and rest. Some drugs may be found useful under special circumstances; among these I may mention asafœtida, indian hemp, bromide of potassium, musk, and morphia. Stimulating remedies may be employed in the form of sprays, inhalations, or solutions applied by the douche or laryngeal brush, or the endo-laryngeal application of faradisation may, in many instances, promote a cure. The inhalation of ammonia, or the topical application of nitrate of silver solution (ʒi to ℥i) by the brush or in the form of spray, is generally beneficial when accompanied by the external application of small blisters over the larynx. These latter should not exceed the size of a shilling, and may be applied every second or third day. Care should be taken, in employing the electric current, not to use it either too strong or too weak; the method I adopt to test the strength of the current is to apply the poles of the electrode to my tongue, and when I am able to bear it without pain, the current being at the same time strong enough to cause muscular contraction, then I know that the battery power is sufficient for my purpose. Electricity should never be employed within the larynx when the mucous membrane of the parts is congested; and it is well not to relinquish the use of it till some time after the vocal powers have been restored.

CURRENT TOPICS.

Royal Infirmary Dispensary Appointments.—The Directors of the Royal Infirmary have appointed Dr. J. Lindsay Steven and Dr. John Macintyre, as physician and surgeon to the Dispensary in room of Dr. Wallace Anderson and Dr. W. J. Fleming, promoted to the visiting staff. Both of the gentlemen selected have shown great industry and ability in their past career: our readers must be familiar with the name of Dr. Steven, especially, in the pages of this Journal. It is pleasing to find that the initial appointments in the Royal Infirmary are being solicited by men of this stamp, and that the Directors have had the wisdom to appoint them by an unanimous vote.

The German Universities.*—The subject of university reform has been of late so much discussed, and so many references made to the German universities, and especially to their financial relation to the state, to the proportion of teachers to students, to their modes of teaching and the results, that a reliable book, written by an acknowledged master of statistics, cannot fail to be interesting to all concerned in the education of youth in this country.

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* *The German Universities for the last Fifty Years.* By Dr. J. Conrad, Professor of Political Science at Halle. Translated by John Hutchison, M.A. Glasgow: David Bryce & Son. 1885.

Professor Conrad surveys a wide field, and gives what we may call the natural history of the German student. He traces him to his home, states his parentage, the occupation of his father, the reasons for his university attendance, the various influences which guide him in the selection of a university, of a special faculty, and of a profession, how and by whom he is taught, and at what expense both to his father and the state. All this is done with German thoroughness and elaboration of detail, and while we can only notice here a very few interesting points in the survey, we confidently recommend all interested to read and digest the book itself.

Fifty years ago there were in all the German universities 15,751 students. In the semester, 1883-84, the number was 25,458. Since the conclusion of the Franco-Prussian war the increase has been so very rapid that it is as if each year an additional university like that of Strassburg had come into existence. This, too, it is to be remembered, is in the face of a very stringent test examination conducted by an independent examining board at the Gymnasium or Real-schule, where the students have obtained their preparatory training. Of individual universities, the largest are Berlin, with, in 1883-84, 4,867 students, and Leipzig with 3,433. The smallest are Münster with 280, and Rostock with 232 students. Taking the students at all the universities, the numbers in the various faculties are in the following proportions in 1881-82:—In the faculty of law, 22·6 per cent; of medicine, 21·5 per cent; of theology, 15·6 per cent; of philosophy, 40·3 per cent. The number of students of law is very large, but not so large as in Austria, where, Conrad says, "nearly the full half of all the students are students of law." In the faculty of medicine the total number of students has increased from 2,505 in 1831 to 6,350 in 1883. This number Conrad thinks insufficient to supply the increasing wants of the population and the losses by death in the ranks of the profession.

As regards the teaching body, this consists of professors, extraordinary professors, and Privat-docenten. There are also some class assistants to the professors and readers, but these are not taken into account. The three first named orders exist in all the faculties, all do the work of professors, and have independent courses. In 1880 the entire teaching staff numbered 1,809—that is, one teacher for every 11 students, a proportion which is shown to have remained very steady during the period of 50 years. Of this number the ordinary professors made up 53·45 per cent, the extraordinary 23·38 per cent, and the Privat-docenten 25·35 per cent. The proportion of the last named is larger in the medical faculty than in the others, and at the largest universities, such as Berlin, reaches to 49 per cent of the teaching staff. In the medical faculty alone, since 1865, 59 new professorships have been created. During the same period, in the same faculty, the number of extraordinary professors has increased from 70 to 139, and that of the Privat-docenten from 117 to 191. These figures indicate the extraordinary progress made by the German universities in quite recent years. Still more striking does their development appear if we consider the number of lectures announced by professors and docents. In the *Calendar* of Berlin university for 1882, there were announced 19 courses on classical philology, of which 11 were private, and therefore paid for. There were also 65 courses on the non-classical languages, of which 25 were private. At Leipzig, in the same year, there were 17 lectures on classical philology, and among these 9 private; on oriental philology 26, of which 15 were private, and on modern philology 26, of which 17 were private. These figures, it is to be remarked, relate to the philosophical faculty alone, but they are sufficient to bring out in striking contrast the intellectual wealth and progressive character of the German universities, and the comparative poverty and barrenness and stationary character of our own Scotch universities.

This comparison is admirably drawn, and at considerable length, by Professor Bryce, M.P., in a most interesting preface, from which we quote the following pertinent remarks:—"The Scotch universities have nobly served the whole nation, but in thinking chiefly of the mass of their students, have omitted to provide for the needs of exceptional groups, have adhered too long to a cast-iron system of classes and degrees, have done too little (though perhaps as much as their wealthy English sisters) for the prosecution of unremunerative researches in the by-paths of philology, history, and physical science. Their endowments have been small, and the State has dealt with them in a hard and parsimonious spirit. Here the example of Germany may well be quoted. The State expends on the German universities nearly eight times as much as they receive from student's fees, and deems the money well spent. She is liberal in the provision of apparatus. She encourages by payment the semi-professorial class of Privat-docenten. She maintains chairs in subjects for which few students can be expected. She recognises, by allowing leisure for, and by the distribution of promotion, the functions of the professor in advancing the frontiers of science by independent inquiry—inquiry which, though it tends indirectly to improve his teaching, often runs into fields where few students can follow."

"No wonder that the burden of the report of the last Universities' Commission was for more teaching power in all the faculties, and for the institution of new professorships and lectureships. The figures given (by Dr. Conrad) significantly rebuke the stiffness of the British Treasury in refusing adequate grants to the Universities of Scotland, for in Germany it is mainly by the State that the additional professors are supported. It is, however, also true, that few or no German professors have incomes equal to those which their overgrown classes and practical monopoly have secured for some of the more favoured Scottish Chairs, and which are, perhaps, taken along with a six months' vacation, more than sufficient to attract the best candidates."

"No student of contemporary history can fail to enjoy and profit by the light which Dr. Conrad throws on the circumstances and tendencies of Germany itself, the central country of Europe, the State which dominates continental politics, the nation which does the largest part of the intellectual work of the world. It is much to be wished that some man correspondingly familiar with our educational position, equally accurate in compiling figures, equally skilful and cautious in interpreting them, would produce a work which should do for England, Scotland, and Ireland, what he has done for Germany, and which would possess the additional interest of contrasting the results of the different systems which each of the three kingdoms has worked out for itself."

REVIEWS.

The Child's Voice: Its Treatment with regard to After Development. By EMIL BEHNKE and LENNOX BROWNE, F.R.C.S. Edin. London: Sampson Low, Marston, Searle, & Rivington. 1885.

THE primary intention of the work before us is to give some reliable information to persons specially engaged in teaching singing as to the proper period at which to begin the training of the voice, and the proper methods for its development. The book may also be useful, however, to those who look to the future vocal powers of the children in the rising generation, as it may enable them to exercise some supervision over the proceedings of those who endeavour to teach children the art of singing. We suspect that there is some truth in the caustic remark by Madame Lemmens Sherrington, quoted here—"The voice cannot be badly treated with impunity, and as parents do not generally give their children the best people to begin with, they generally have their voices spoilt before serious study commences." If this be so, then there is all the more need for non-professional but interested persons understanding something of the principles which should guide teachers in dealing with the child's voice.

The subject is taken up in a thoroughly practical spirit in the work before us. From the plan of it, the opinions here have much more value than the mere expression of the views of the authors, however well known they may be as experienced and trustworthy observers. They have, in each section of their work, taken care to base their opinions on the written testimony of distinguished singers and teachers of singing. They have received answers to questions from nearly two hundred persons belonging to this class, and they have made apparently good use of the large amount of valuable material thus made available for them. There are here extensive verbatim quotations from these experienced persons, as well as statistical statements of the opinions in the gross. We cannot award too much praise to the industry and enterprise shown in this method of treating a somewhat special subject, which could not otherwise be so satisfactorily elucidated.

The voices of girls and boys before puberty seem to show very little difference. As boys are generally larger and more robust than girls, so their voices are usually fuller and perhaps richer. "It may also be accepted as a fact that the majority of boys have alto voices, and that the majority of girls have treble voices." It seems to be generally agreed that, while the child should begin early to use the voice, great care should be taken to avoid overstraining during the period of growth. The regular teaching of singing should begin between the ages of six and ten, but no serious training of the voice should be undertaken till after puberty. When care is exercised and the voice used naturally, it will stand, even in childhood, a great deal of exercise. Here is the opinion of Madame Seiler, whose books on the training of the voice are well known. "I remember singing quite prettily at seven years of age all the little songs my sisters taught me, imitating by myself all the Italian arias which they learned in their singing lessons from an Italian master. Despite my early beginning and the constant use of my vocal organs (singing almost daily with my pupils from morning till evening) my voice is still in its full power, freshness, and compass—rather improving than losing—and at my next birthday I shall be sixty-four years of age."

Our authors discuss the question of singing for children in its relation to health, and their remarks are on the whole sound and sensible. They bring forward evidence to show that singing improves the appetite and the health generally. They deprecate singing immediately after meals, and the too prevalent habit of allowing boys too little sleep. We quite endorse the opinion quoted by them that under ten years of age children should have eleven hours sleep, under thirteen, not less than ten hours, and over thirteen, nine hours.

Singing is wisely regarded by the authors as the proper beginning and foundation of all musical study. In this view they are sustained by the high authority of the late Dr. Hullah and Mr. John Curwen. The following is the opinion of the latter on this subject. "The process of learning an instrument, like the pianoforte or violin, can be divided into two parts. First, the process of training the ear in time and rhythm, and the eye in musical notation; secondly, the process of mastering the mechanical difficulties of the key-board, and enabling the fingers promptly to obey the mind. Now, the first process can be attacked most easily by learning to sing. It is a case of 'divide and conquer.' A child who has learnt to sing and to read music with his voice can devote his undivided attention to the manual difficulties of the instrument he is trying to play." While this is true, it is always to be remembered that the child's voice is a very tender instrument and should be carefully dealt with. In the words of our authors, "Soft, pure tone should be cultivated from the beginning, and rough, throaty, and nasal tone should be corrected. Above and before all, the maxim that singing is not so much a matter of hard blowing as of purity of tone and of resonance, should be remembered from the very first; and teachers should be very careful to set an example to the children by their own singing; for it is surprising how the little ones will mimic their faults as well as their excellences." We can understand from this how necessary is Madame Seiler's advice that "*only the best teachers* should be trusted with the cultivation of children's voices." Our authors, in common with many other musical authorities, utterly condemn the attempt to train choirs of children to sing long and serious works, such as "The Messiah," "Elijah," "The Pirates of Penzance." Childrens' organs are not suited to the strain required for learning such works, nor are their minds sufficiently developed to sing them with intelligence.

The change of voice at puberty is of great importance in the boy but of minor consequence in the girl. Great care is necessary during the breaking of the voice in the boy, and in most cases it is necessary to give up singing altogether, although with care, gentle exercise may be continued in some cases. It is all the more important to emphasise the danger of fatally injuring the voice if it be exercised during the break, as there are frequently strong temptations for boys to remain singing in choirs and otherwise during this period. As a general rule good boy singers turn out good singers as men, but there are many cases to the contrary. The question whether it is possible to draw any conclusion from a boy's voice as to whether it will in manhood turn out a tenor, barytone, or bass, is here answered in the negative. We have the statistics from 295 students in training colleges for schoolmasters, and it is on these that this opinion is based.

We who have so much indifferent singing inflicted upon us both in drawing rooms and concert halls would venture to call attention to three points in regard to amateur singing. *First.* It is much more important to have purity of tone than volume of sound. People will listen to a singer, however quiet the voice, if it be free of throatiness and any kind of strain. *Second.* A singer should always select something perfectly within his comprehension, and which he can thoroughly enjoy the singing of. Better a Moody and Sankey hymn, sung with accuracy and intelligence, than a fine operatic piece of which the singer understands neither the language nor the musical intention. This applies to words as well as to music. *Third.* A singer should learn to keep within the capabilities of his vocal organs. There should be no sign of difficulty in the most intricate passages of the piece sung, and no appearance of strain in the high notes. Above all, the notes should be in perfect time and tune. Any one who is not perfectly sure of his absolute accuracy in these respects should never attempt to sing before people.

Voice-Use and Stimulants. By Lennox Browne, F.R.C.S. Ed. London: Sampson Low, Marston, Searle, & Rivington. 1885.

This work, dealing with a more limited subject than the one noticed above, is of less interest and value, although it also forms a valuable contribution to the literature of the subject with which it deals. The opinions expressed here are based on the replies given to a series of questions addressed to singers as to the use of alcohol and tobacco. The author received no less than 380 replies to his questions, and only 10 of the whole number objected to the publication of their names. It is interesting to notice that no less than 26·58 per cent were total abstainers, while 56·05 used alcohol habitually, the remaining percentages being made up of those who used it occasionally (10·08) and rarely (6·58).

As to the conclusions, they may be stated generally as favourable to moderation or abstinence in the use of alcohol in daily life, while it is, for the most part, injurious immediately before or during the use of the voice.

In regard to tobacco, its use is regarded by the author as even more prejudicial to the voice than that of alcohol, although in strict moderation it is not to be regarded as seriously injuring the vocal organs. Prolonged stay in an atmosphere permeated by tobacco smoke is likely to do still greater harm, even if the person is not smoking. In this view a strong condemnation is given of "smoking concerts," where, besides the injury from the atmosphere, the singer is often tempted to strain his voice in order to be heard over the prevalent noise.

Rupture of the Urinary Bladder: Based on the Records of more than 300 cases of the Affection. By Walter Rivington, F.R.C.S. London: J. & A. Churchill. 1884.

This is a very valuable monograph of an affection of comparative infrequency, but of the greatest possible importance from its extreme danger to life. Mr. Rivington has seen only four cases of rupture of the bladder in his own practice, but he has with the greatest labour and diligence, extending over many years, collected from all possible sources every recorded case he could find. These records he has analysed and compared with such singular care and skill that his work must prove of the greatest service to all future observers.

The book is divided into four chapters. The first deals with the author's own cases, and with general considerations as to the varieties of the rupture, its causes, seat, and complications, and the age and sex of patients. The recorded cases are classified as follows:—

1. Simple fatal intra-peritoneal ruptures, - - -	152
2. Complicated fatal intra-peritoneal ruptures, - -	30
3. Fatal extra-peritoneal ruptures, simple and complicated,	90
4. Reported cases of recovery, - - - - - -	40
5. Fatal ruptures of uncertain position, - - -	10
Total, - - - -	322

The second chapter deals with the symptoms and diagnosis, and with the morbid appearances found *post-mortem*. This is a very careful digest, and the reader will find on such disputed points, as for example the effects of urine in the peritoneal cavity, the evidence most carefully weighed and sifted. On this point, Mr. Rivington concludes very strongly in favour of the destructive effects of urine on the tissues with which it comes in contact, and its depressant effects on the system generally if absorbed.

The third chapter deals with the reported cases of recovery. These are dissected most minutely, and as regards the eight reported cases of recovery after intra-peritoneal rupture, only one, that recorded by Dr. Walter (Ranking's *Abstract, 1862*, Vol. 2) is admitted to be genuine, the diagnosis in the others being set aside on the ground of defective evidence. It may interest some Glasgow surgeons to notice that in Chaldecott's celebrated case of supposed recovery, which was many years ago the subject of controversy between Dr. Gillespie, of Edinburgh, and Dr. Eben. Watson (*vide Glasgow Medical Journal*, 1859), Mr. Rivington accepts Dr. Watson's conclusion that it was a case of suppression, and not of extravasation of urine, and consequently was not a case of rupture of the bladder at all.

The fourth chapter gives a *resumé* of all the points of treatment practised or proposed in these cases. Mr. Rivington concludes that the only chance a patient may have in intra-peritoneal cases depends upon his being seen early, when a median abdominal incision should at once be made, and the peritoneal cavity thoroughly cleaned out—the wound in the bladder need not be stitched. A perineal urethrotomy should then be performed to drain the bladder. In extra-peritoneal cases, the perineal incision should be made for drainage, and a supra-pubic cystotomy is necessary for the proper evacuation of the extravasated urine.

A very extensive bibliography and appendix of cases completes this valuable book. This appendix, from its great length and mass of detail, is very confusing, and we hope Mr. Rivington will "boil it down" considerably before he issues a second edition.

A Treatise on Gout, Rheumatism, and the Allied Affections. By Peter Hood, M.D. Third Edition. London: J. & A. Churchill. 1885.

The Regimen to be Adopted in Cases of Gout. By Dr. Wilhelm Ebstein. Translated by John Scott, M.A., M.B. London: J. & A. Churchill. 1885.

Gout in its Clinical Aspects: an Outline of the Disease and its Treatment, for Practitioners. By J. Mortimer Granville, M.D. London: J. & A. Churchill. 1885.

From a very early date in the recorded history of medicine gout has been a well recognised disease. Other diseases have arisen and disappeared, and some of the curious have spent time and labour over the recognition of them or their evolutionary descendants. There is no such uncertainty about gout. In its acute manifestations, it is to us what it was to the ancients. We have a fuller knowledge of the chemical and physiological relations of the gouty deposit, we are better aware of the effects of gouty blood on the various organs and structures of the body, but we cannot yet say whether deposit precedes or follows the inflammatory symptoms. But if we are not in a position either to affirm or contradict the old belief of a disease entity dropped into the affected part, we can at least congratulate ourselves upon an extensive knowledge of gout. To such authors as those under notice we may safely leave the discussion of theoretical matters. It concerns us more to know that we have analysed at least the ash of the gouty process, whatever the process may be. We have, moreover, learned to starve the fire which yields that ash. We have survived the taunt that if we drink wine we shall have the gout, and if we do not drink wine the gout will have us. We can claim, as Ebstein does, that no system of diet shall be adopted in gout which shall produce any bodily weakness or diminish the resisting power of the individual. Nor was Ebstein the first to make such a claim as a reasonable requirement of all dietetic treatment, for among the older authors the necessity of eating to live is fully recognised, while moderation in all things is strictly enjoined. There is probably some truth in this same moderation in eating over and above the mere fact of the chemical properties and constitution of the food eaten, for the tax laid upon the digestive function probably influences the production of uric acid. And so it is that we hold in our hands the two ends of a tangled thread. We are very wise about diet and its influence upon the production of the gout element, but where the change takes place we cannot with any certainty say. Whether it be the liver, the brain, the kidney, or the stomach which has originated the fault, or whether our muscles or the marrow of our bones have omitted to destroy and disintegrate as they should, or have even adopted an unnatural producing function we may surmise but we cannot say. Even our chemico-dietetic treatment affects urea rather than uric acid. It is for some such reason that gout offers special opportunity for study from various standpoints. The elaborations of the chemist must be supplemented by the labours of the clinicist, while the information, historical or otherwise, supplied by the shrewd general practitioner cannot be overlooked.

The books before us represent gout as it appears to all those phases of opinion. It would be remarkable if a man of Dr. Hood's experience of general medical practice had not something of importance to say of gouty inheritance, and the after history of cases treated with or without colchicum. That his book should have reached a third edition is in itself proof of the appreciation with which it has been read, and we recognise in it numerous faithful portraits of familiar conditions. In his references to theoretical matters Dr. Hood is not quite so happy. Dr. Mortimer Granville's book claims to be a treatise on gout in its clinical aspects. We must confess that Dr. Hood's volume impresses us as more truly deserving such an appellation. In it we do recognise bedside views, while Dr. Granville's book savours more strongly of the study and the midnight oil. But Dr. Granville is a voluminous, some would say a great, writer. We are always fascinated with his work, but we never regard his statements as markedly clinical. We recognise rather the existence of extensive information, which has failed to beget in the writer that reverence for what he does not know, which keeps the pens and tongues of so many good men silent. Dr. Granville's theoretical tendencies lead him beyond the limits of clinical work, his admission of want of knowledge is reduced to a minimum, and many of his suggestions as to treatment are not more than plausible. There is a spice and flavour of science in his deductions, which is to clinical work what a good novel is to real life. It may have a teaching value, but it lacks practical force. We have not yet forgotten the pleasure with which we read a recent book of his on nerve vibration as a means of treatment; and we must confess that the few references which he makes to that subject in his present volume quite coincide with our expectation.

But it is not only in this respect that Dr. Granville's book fails to satisfy us as a clinical study. For instance, at page 237 we have his observations on the treatment of destructive gouty inflammation of the eye. Every one who has treated such a case will recognise that the only valuable advice which he gives is at once to call in an ophthalmic surgeon. But most men know that the ophthalmic surgeon will prescribe calomel and opium until the inflammation is mastered, then give iron or quinine either with or without mercury. We should be inclined to regard Dr. Granville's prescriptions as not very useful, and the second opinion as a shelter for one's own reputation. Surely this is not a desirable clinical aspect.

But there is an aspect of Dr. Granville's book which bears a different reading; it contains much legitimate speculation. Opinions may differ as to the value of speculation on such subjects. Some think that theoretical considerations raise new difficulties, others that they shed new light. But the light they shed is uncertain, and at best temporary. It is doubtful, indeed, if theory should ever overstep the task of explaining clinical facts, but when it does it should only suggest investigation or experiment. We freely admit that it is the intensely practical character of the other volumes under notice which brings Dr. Granville's speculative tendencies into full relief. Dr. Hood appeals to our every day life as it is, and Dr. Ebstein points the direction for further work.

In a monograph devoted to the study of the regimen to be adopted in gout, such as this of Ebstein, it was certainly impossible to avoid preliminary considerations of the causes which produce the disease. Moreover, as the writer diverges from the current opinions concerning its pathology, it is well upon such points to let him speak for himself.

Page 19.—"The abnormalities in the production of uric acid which happen in the case of gout must be special and peculiar. I look for these abnormalities in the circumstance that the gouty patient, in consequence of a congenital and generally hereditary predisposition, produces uric acid in his muscles and in the medulla of his bones. As it has not been proved that the healthy individual produces uric acid in these tissues, I regard this phenomenon in gout as the production of uric acid in an anomalous (perversem) situation. This congenital disposition is peculiar to the gouty and to all who suffer from the uric acid diathesis. This anomaly is hereditary; it is not the product of a definite organic or systemic affection, but it consists of a peculiar disposition of tissue-change, and this we denominate a *diathesis.* This diathesis may be aggravated by certain exciting causes, but so far as we know cannot be produced by these alone."

Page 20.—"I think it is quite inadmissible to admit Cantani's view that the uric acid is partially deposited in the connective tissue. I regard the cartilaginous and other connective tissues as entirely, or almost entirely, paths for the fluids and supports of the tissues, but not as self-acting laboratories of tissue-change."

Those who have listened to Professor Gairdner's lectures on the relation of diathesis and disease, as delivered in his ordinary course on practice of physic, will find in these quotations a remarkable illustration of his views. The pathology of local gout is described thus:—

Pages 7, 8.—"I endeavoured to establish the proof that *uric acid is a chemical poison*, which can cause not merely inflammatory, but also necrotising and necrotic *processes in animal tissues.* I succeeded in establishing, by anatomical investigation of gouty organs, that the only typical appearance in gout was that of elements undergoing necrosis or already necrosed. These were found by me not merely in the hyaline joint-cartilages of gouty subjects, and in the rest of the so-called connective tissues (I examined the fibro-cartilages, the tendons, and the loose tissue beneath the skin and between the muscles), but also in the kidneys. Among the manifold anatomical changes which may be induced in the kidneys by gout, this was recognised as the only actual and characteristic appearance. The formation of these foci of necrosing and necrosed elements follows directly from the fluid parenchyma being exceedingly rich in neutral urate of soda, and stagnating in the affected parts. The separation of crystallised urates in the affected tissues is the secondary process, and only follows after the tissue has been completely destroyed by the uric acid."

Objections might be raised to this view on the ground that a chemical poison capable of producing necrotic changes in the tissues would be likely more often to lead to abscess assuming the form of boil or carbuncle. In point of fact, we do see suppurative processes in gout, but they have not the character of the suppuration which usually follows necrotic change. They more resemble the ulceration set up by the presence of a foreign body.

As regards the diet in gout, there is a growing tendency to expand it in the direction of variety, provided only that certain substances well known to be deleterious are excluded, and that strict moderation in eating is observed. Haughton, it is true, has shown that the amount of uric acid secreted by flesh as compared with vegetable eaters is in the proportion of about 4 to 1. But for purposes of nutrition, so much vegetable has to be consumed that other objections on the score of difficulty of digestion come into play. Neither must a tedious diet be prescribed, as was that used by Cantani, for patients will not continue to use it. In the matter of carbo-hydrates, Ebstein fully endorses Cantani, and forbids all which contain such starch as is early converted into sugar. The question of the use of fat is certainly of a more individual nature. The older authors did not forbid it, so we may assume that it had no very obvious bad effects. Ebstein investigated the point and found no marked change in the excretion of uric acid after butter, but succinic acid appeared in the urine. Fat has obvious uses in certain cases of gout, it is a valuable substitute for starchy food, and need not be avoided. This statement is supported by the high authority of Dr. Garrod. Moderation in diet, and thorough mastication of the food is very fully insisted upon, indeed it is no more than a corollary on the injunction to eat that you may live. Fruit, on the contrary, may be given freely provided it is ripe and wholesome, but all that may irritate the intestines is interdicted. In this association we cannot avoid mentioning Dr. Mortimer Granville's treatment of gout by tauro-cholate of soda pills, and we are pleased to record a favourable experience of their usefulness in gouty dyspepsia. Moderation in such things as are permitted, no preponderatingly animal diet, and due regard to the use of fats and carbo-hydrates is the sum of Ebstein's prescription.

Upon the use of alcohol in gout, most authors are agreed. As an article of diet it is to be esteemed, and used as a medicine with proper discretion it is invaluable. Water is the most suitable drink, and should be used only in such quantity as supplies the need of the system. Cantani and Dr. Milner Fothergill both advise that large quantities of water should be drunk. The latter author, indeed, insists that it should exude freely from the skin. The principle of moderation is probably the better one, with a leaning towards excess of water in the presence of actual deposits of uric acid. There are many reasons for avoiding a long continued plethora of the vascular system in gout. Massage and friction are good when duly used. Baths to the extent of keeping up a healthy action of the skin are desirable, and the use of even cold water is permitted, provided the heart and kidneys are healthy. The clothing of the gouty patient should be light, and of a nature calculated to accustom his skin to the performance of its natural functions, but it should also be effective as a non-conductor. All such mechanical pressure as that exercised by tight shoes should be avoided. Finally, exercise proportionate to the strength of the patient, and calculated to develop and harden his muscles, and promote the circulation of fluids is most important, but it must never be pushed to exhaustion.

We have not mentioned the translator, who has done his work so well that the disadvantages of a translation are not recognisable.

A Practical Treatise on Urinary and Renal Diseases, including Urinary Deposits. Illustrated by numerous cases and engravings. By Wm. Roberts, M.D., F.R.S. Fourth Edition, assisted by Robert Maguire, M.D. London: Smith, Elder & Co. 1885.

The high reputation and the great popularity of the previous editions of Dr. Roberts' book excited a considerable degree of interest in the issue of a fourth edition after an interval of something like ten years, and we have little hesitation in saying that the members of the profession will find the present volume as worthy of their confidence as any of its predecessors. In the preparation of the present issue the author, owing to want of leisure, has availed himself of the valuable assistance of Dr. Robert Maguire, who has revised the entire work. Of course the fundamental plan of the book remains much the same as in former editions, and the object kept in view in the preparation of the volume before us has been to bring the different sections as much as possible abreast of the advances which have recently been made in our knowledge of the subjects with which they deal. This object has been accomplished with more or less success, although, in a few places, we think the writers have scarcely done the justice to certain recent researches which their importance merited. With regard to the general arrangement of the subject matter, we think it is excellent, and renders the volume admirable, both as a text-book for the student, and as a work of reference for the more advanced reader.

Part I deals with the physical and chemical properties of the urine in health and disease, and with urinary deposits. We are exceedingly pleased with this section of the volume, and are of opinion that the order in which the different subjects are discussed is admirably suited for teaching purposes. Some years ago, in preparing a series of practical demonstrations on the clinical examination of the urine for students attending the medical wards, we were much aided by Dr. Roberts' work, and in our experience the order adopted by him proved much the most convenient and useful method of conveying information to the pupil. The article on suppression of urine (anuria) is full of interest, and replete with material for thought, and will well repay a careful perusal. In the section on Albuminuria Dr. Roberts has incorporated the bulk of what he said in his address on the subject at the recent debate in the Glasgow Pathological and Clinical Society. The value of the more recent and so-called delicate tests for albumen in the urine is fully discussed, and as the result of his experiments, Dr. Roberts has come to the conclusion that heat and nitric acid, applied with due precautions, are perhaps our most reliable reagents for detecting the presence of this abnormal ingredient. With regard to heat he says—"When performed with these precautions, the boiling test is the most sensitive and the most reliable of all albumen tests;" and again, "Nitric acid is an extremely delicate test for albumen." With these remarks our experience in the examination of urine on the whole inclines us to agree. While full justice has been done to the labours of most of the investigators in this department of clinical research, we are surprised and disappointed that no reference whatever, so far as we can determine, is made to the excellent investigations of our townsman Dr. Robert Kirk, whose observations on the picric acid test, &c., are well known. This is a distinct omission in what is otherwise a very good account. We have a very decided objection to the term "physiological albuminuria," which, however, does not apply to its synonyms, "functional albuminuria," "transient albuminuria," or the "albuminuria of adolescents." The term *physiological* implies the theory, which there is not sufficient evidence to support, that in a strictly normal condition albumen may pass into the urine; and until the theory is substantiated by fact the term would be much better avoided. The circumstance that "in most cases the subjects of the affection show general want of tone, lassitude or anæmia, and often disorders of digestion may be noted" is quite sufficient to put it out of the category of physiological states; and the converse fact that "in many" (*not most*) "cases the general health is quite perfect" is no proof that it is not pathological, for we know that many morbid states are often latent for lengthened periods of time.

The portion of the volume which treats of Sugar Testing, Diabetes Insipidus, Diabetes Mellitus, Gravel, and Calculus, is excellent, and full of information which will be of the utmost value to the practitioner.

Under the general heading "Bright's Disease" an interesting preliminary historical account is given of the different modes of classification which have been adopted. Dr. Roberts classifies the cases under two main heads—*Acute* and *Chronic.* The first embraces a compact group which was formerly designated "inflammatory dropsy." The second includes three types—viz., (1) Cases which have lapsed from the acute state; (2) Cases which have been chronic all along; (3) Cases which are associated with waxy or lardaceous (so-called amyloid) degeneration of the kidneys. In our opinion the time has now arrived for excluding altogether amyloid degeneration of the kidneys from the category of Bright's disease. In its clinical, as well as in its pathological characters it is so obviously different from the other affections included under the term Bright's disease, that our ideas would be much simplified if it were placed under a separate heading. It is not an idiopathic disease in the sense that acute or chronic nephritis is, and its clinical significance is so obviously secondary to the grave morbid states to which it is secondary, that we can recognise no valid reason for associating it with those affections which more properly constitute Bright's disease.

The chapter entitled "Suppuration in the Kidney: Renal Embolism" is in our opinion much the least satisfactory in the volume, and is by no means up to date. The excellent work which has recently been done in this department by Mr. Marcus Beck, Dr. Lindsay Steven, and others, is passed over with the scantiest acknowledgment; and the classification given of such affections is, we think, faulty in the extreme. The term, "phlegmonoid abscess," applied to the kidney, is, according to our judgment, misleading, and why ordinary renal embolism, resulting as it does in the pale infarction of the kidney and involving the process of coagulation necrosis so carefully described by Weigert (a process as different from that of ordinary abscess formation as can well be imagined) should be included among "purulent formations in the substance of the kidney" is not very easily understood. There can be but little doubt that the whole of this chapter requires careful rewriting.

The chapter on "Entozoa in the Kidneys" is of exceeding interest and contains a most elaborate and valuable account of the subject. Of the six cases of hydatids of the kidney, which are given in detail, none appears to have occurred in Dr. Roberts' practice, extensive as it must be, and therefore it may be interesting to remind the readers of this *Journal* that quite recently a case was recorded in its pages by Drs. Fotheringham and Steven. Notwithstanding the caution given by Dr. Roberts "that the evacuation of a renal hydatid is not so urgently called for as an evacuation of a hydatid of the liver," we would, in an undoubted case, be inclined to recommend pretty early operative interference, especially as year by year operations on the kidney are being undertaken with greater and greater security.

We have thus endeavoured to give some idea of the character and scope of this valuable work. It is pleasingly written, and the records of cases, in which it abounds, greatly enhance its importance and value. We feel certain that no member of our profession will ever regret having added it to his library.

Aids to Public Health. By J. L. W. Thudichum, M.D. London: Baillière, Tindall, & Cox. 1885. Pp. 49.

It can scarcely be expected that a manual, comprised within the narrow limits of 50 pages, can be of an exhaustive nature; but the name of Dr. Thudichum is a sufficient guarantee that the contents are of a high order. The chapters on Water Supply, and on Sewage and Sewerage, are specially important, as no one is better qualified than our author to speak on these subjects. He says: "For the chemical analysis of water, with a view to estimating its fitness for domestic and manufacturing purposes, many methods have been devised. By one method, water is judged of from the amount of carbon and nitrogen which it yields by combustion of its organic matter; by another it is judged from the amount of ammonia which can be obtained from its organic matter; by a third, from the amount of oxygen which can be taken up by its organic matter. In fact, these analyses show mere quantations of organic matter, such as may be, and mostly are, quite harmless; while true disease-causes, when present, are not necessarily indicated in any way by these analyses. Chemical analysis, therefore, affords no guarantee for the purity of a water, and does not indicate its disease-causing impurity. In the present state of things, the innocuity of water can be insured only by taking it from a pure source and keeping it pure until it is consumed."

Regarding Sewage, our author says:—"At all times people in Europe avoided to deal with excreta in a systematic, rational manner. The injury which this neglect has inflicted upon countless generations can be measured by the scientific intellect, but cannot be described. It is marvellous to behold how quickly with a certain complication of his habitation, man becomes conservative of filth. He will let it lie above ground to contaminate his habitation, his grounds, his streets; he then digs holes in the ground to collect the materials, and removes them when excess and overflow have caused an intolerable nuisance: but he prefers holes in the ground so constructed that the matters shall, if possible, soak into the earth and disappear from his sight, and from the necessity of attention: these holes are termed *cesspits* or *cesspools*. The history of cesspits, particularly in towns, discloses one of the most deplorable aberrations of the human intellect, engendered partly by poverty, partly by absurd laws, partly by mere neglect and idleness. The ground on which towns and villages stand became honeycombed with cesspits; and, as it were, also honeycombed with wells, many of which were in close proximity to cesspools, it followed that there was a constant percolation of matter, more or less altered, from the cesspits to the wells. Now, when a cesspit became infected with disease-causes, particularly the germs of typhoid fever, or of cholera, the neighbouring wells also became infected with the disease-causes, and the people drinking the water from the wells became the victims of the relative disease."

Regarding the Disposal of Excreta, he says:—"The third mode of disposing of excreta, and the only one which is applicable to towns; and also the only one which the comfort-loving classes will adopt, whether living in or out of towns, is removal by water by the instrumentality of the so-called water closet, and of drains, and eventually sewers. This system is known as that of *water-carriage.* This, when applied by itself in such a manner that refuse liquids not being excreta and rain-water are disposed of separately, is relatively easily managed, as the sewage produced can be cleared of the insoluble matter by straining, the solid matter can be dug under ground, and the liquid can all be absorbed by a relatively small piece of suitable ground. I have seen this carried out in isolated habitations, provided with a garden, in the most perfect and almost self-working manner, the only attention required being the removal from time to time of the odourless strained-off matter. Indeed, this experience proves that the system is applicable to towns in which there is room for a double system of sewers, one for rain and surface; another for the products of water closets only. Such a double system of drainage is the only one which could, as regards towns, solve the problem of the profitable application of the sewage? It has been proposed many years since, but deemed to be either too expensive or impracticable in certain localities. It should, however, be kept in view for all towns in which there is room, and where new arrangements have to be made."

The great difficulty which at present exists as to the disposal of sewage by the water-carriage system; and as to the prevention of the pollution of water-courses and rivers, depends on the fact that the single system of sewerage is prevalent everywhere. It is impossible to utilise the sewage proper which is mixed up with drainage-water, and with the surface rainfall; and it is impossible, unless at great expense, to render the combined sewage, drainage, and rainfall innocuous. The reconstruction of the sewers of our large cities would involve such an enormous expense that the expedient could not be proposed; but we agree with our author in the recommendation that the separate systems should be kept in view for all towns where new arrangements have to be made.

These quotations will enable our readers to estimate the value of *Aids to Public Health.*

The Hunterian Oration, delivered at the Royal College of Surgeons of England, 14th February, 1885. By John Marshall, F.R.C.S., F.R.S., LL.D. London: Smith, Elder, & Co. 1885.

The biennial struggle to produce something original in the Hunterian Oration rather prominently presents itself in that delivered by Mr. Marshall at the beginning of the present year, and now before us in the form of a well printed and neatly bound brochure. After a brief allusion to some of the most distinguished fellows of the College who had passed away within the last two years, the Orator adopts the somewhat novel method, in depicting the life of Hunter, of "reversing the usual order of biographical research and narrative," so that instead of reviewing his life from the cradle to the grave, he describes first his closing years, and passes back by decades to the "humble cot at Calderwood, the place in which he was born." This biographical sketch occupies, however, but a brief space, and is then followed by what essentially forms the oration.

The scheme upon which Mr. Marshall worked is best stated in his own words—"If it be not too presumptuous a method to adopt, I will imagine Hunter to be with us in presence this day; and, judging him by his own deeds and declarations, I will try to point out the mental attitude he would probably assume in regard to the active work and salient opinions of our times." From this it may be concluded that what follows is replete with interest. Mr. Marshall, with considerable perspicuity and conciseness, passes through the various branches of medical science, placing in contrast the views and teachings of Hunter with those which have arisen since his day, and now accepted as the preaching and practice of modern surgery.

There is one minor point in which the author surely somewhat errs. Thus, in speaking of Hunter as a practical surgeon, he says—"Hunter would find his capital operation of ligature of an artery high up for the cure of aneurism, in some degree superseded by the improved method of compressing the artery in the same situation." But the tendency, at present, after many trials of compression, is to revert to the old operation of ligature; so that Hunter would really have the peculiar pleasure of seeing his own operation re-introduced and replacing that which had previously been used as a substitute.

To every lover of scientific surgery, and, as a consequence, therefore, of its founder, this oration will be read with much interest and profit; and the course adopted by the President and Council of the College in having it thus published will no doubt be rewarded by the circulation it will attain in the profession.

Endemic Goitre or Thyreocele. By WILLIAM ROBINSON, M.D. and M.S.

Endemic Goitre or Thyreocele is the title of a thesis written by Dr. William Robinson for the degree of M.D. of the

University of Durham; and its value, as a contribution to medical literature, may be judged by the fact that for it he was awarded last year's gold medal.

He treats of the subject in a thoroughly systematic manner. Under the head of pressure effects, he says that these "bear no proportion to the size of the growth" which is well enough known, and amongst the reasons given in explanation of this is "its manner of growth, *i. e.*, as to whether it bulges internally or externally," which practically is a very important point to bear in mind.

In discussing paralysis of the abductors of the vocal cords, attributed to pressure on the recurrent laryngeal nerves, he suggests the possibility in some cases of the paralysis being of vascular origin—interference with the blood supply through the inferior laryngeal arteries, resulting in fatty degeneration and atrophy of the abductors; a condition found in a case reported by Dr. Semon, and here quoted.

The pathology and etiology of the subject are fully discussed. "Potable waters," he states, "are the vehicle of the cause," but the cause—the goitriferous principle—he has been unable to detect, and he has no new theory to offer. Apart from the influence of water and the endemic influence, he considers that individual susceptibility or idiosyncrasy plays a most important part in the development of the affection, and heredity he thinks may enhance this susceptibility. Altogether this interesting thesis is well worthy of attention.

Helps to Health: the Habitation, the Nursery, the Schoolroom, and the Person, with a chapter on Pleasure and Health Resorts. By HENRY C. BURDETT. London: Kegan, Paul, Trench, & Co. 1885. Pp. 249.

MR. HENRY C. BURDETT, the founder of the Home Hospitals Association for paying patients, has devoted much attention to sanitary subjects, and his various contributions to the construction and management of hospitals have fairly entitled him to a high position as an authority on such subjects.

The volume before us, *Helps to Health*, embraces a very wide range of subjects; and, regarding it, our author says that "No book yet published contains, in a handy form, the information which an ordinary person can desire to know about health and all that affects it. The aim of this book, therefore, is to give with sufficient amplitude, but in the fewest possible words, precise information concerning matters which affect the health and comfort of every class from childhood to old age." The first chapter is devoted to the Nursery and the Care of Infants, and the last to the Sanitary Powers and Duties of the Citizen. The book is intended specially for the guidance of the intelligent public rather than for the medical profession, and to those interested in such matters it cannot fail to prove a useful guide. The first five chapters, which treat of Personal Hygiene, contain many useful hints regarding the preservation of health. Chapters vi, vii, viii, ix, and x, are devoted to a consideration of the Hygiene of the House, and contain much valuable information interesting to all classes, professional and non-professional.

The chapter on Health Resorts does not contain matter of much value; while that containing the names and addresses of Sanitary Officials, metropolitan and urban, is of doubtful value, and can be of interest only to those resident in England.

Elements of Surgical Pathology. By AUGUSTUS J. PEPPER, M.S., Lond. Second Edition. Cassell & Co., Limited, London, Paris, and New York. 1884.

IT is with much pleasure we have to notice the second edition of this valuable little work on Surgical Pathology. Its appearance only a year after the first edition is a sufficient guarantee that the book supplies a need. Necessarily, within so short a period, there would be little new to add; nevertheless, the author has introduced some additional matter, and greatly improved the chapter on Inflammation.

We would hope to see the second edition as rapidly taken up as the first, for the quality of such knowledge as the subject offers is well worthy of wide and rapid dissemination among students and practitioners.

Manual of the Antiseptic Treatment of Wounds, for Students and Practitioners. By W. WATSON CHEYNE, M.B., F.R.C.S., Assistant Surgeon to King's College Hospital, &c. London: Smith, Elder, & Co. 1885.

MR. CHEYNE, in the little book before us, has supplied a want long felt by students. Without being too discursive, and yet with a completeness sufficient to elucidate his subject, the practice of aseptic dressing, with the principles upon which it is conducted, are clearly and concisely enunciated.

The first chapter is devoted to a brief survey of the subject of wound repair, followed in the second by a general description of bacteria, their origin and life history. The various materials used for the destruction of micro-organisms are then described, and lastly their method of application to special operations. The whole subject of aseptic dressings is very minutely dealt with; and the reason for every step adopted in their practical application carefully discussed. Thus, while the book is replete with practical lessons, these are so conveyed that a knowledge of something beyond their simple mode of use is derived; in other words, the author's method of teaching tends to inculcate a true scientific spirit in the mind of every learner. It is with much pleasure we recommend this little work to every student and practitioner.

The Transactions of the Medico-Chirurgical Society of Edinburgh. Vol. II. New Series. Session 1882-83. Edinburgh: Oliver & Boyd.

We congratulate the Society on the appearance of the Second Volume of the New Series of Transactions. The present is really the 5th volume of Transactions since the foundation of the Society in 1821, there having been no publication of the papers submitted to the Society in a collected form for 57 years. The book is not a large one, but contains a number of interesting and important papers; and we wish the Society every success in the important work they have undertaken of re-establishing the issue of a volume of Transactions.

The Harveian Oration, 1884. By J. Russell Reynolds, M.D. London: J. & A. Churchill. 1884.

This oration, which must already have been seen by our readers in some of the weekly journals of October last, is now republished in book form, and adds another to the many elegant, erudite, and philosophical orations delivered in commemoration of Harvey. One of its main features is the endeavour to find in Harvey's writings foreshadowings of such ideas as are now conveyed by the terms "protoplasm," "the survival of the fittest," "vaso-motor change," &c.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

WESTERN INFIRMARY.

REPORTS UNDER THE SUPERVISION OF JOHN LINDSAY STEVEN, M.D.

FROM PROFESSOR MACLEOD'S WARDS.—CASE UNDER PROF. GAIRDNER.

APHASIA OCCURRING SUDDENLY IN A PATIENT WHO HAD UNDERGONE AMPUTATION OF THE THIGH.—[Reported by Mr. Beveridge, M.B., House Surgeon.] The following are notes from the Journal of Dr. Macleod's ward, of an attack of aphasia suddenly occurring in a case in which amputation of the thigh had to be performed for an arthritis of the right knee joint. The medical aspect of the case was more immediately under the observation of Prof. Gairdner. The operation was performed on 18th Feb., 1885, and the healing process in the stump was well advanced at the time of the events now to be narrated. The aphasic element developed itself apparently quite suddenly on the night of 18th June, and on the 19th the following note was taken:—Patient is not in any sense unintelligent nor comatose, nor even lethargic, and as far as the state of the consciousness and intelligence goes, might be expected to converse as freely as any other man. Moreover, he understands generally what is said to him in the way of simple questions about his own state, and is able to give brief replies, carrying nevertheless quite a definite significance, as when he intimates that he has no pain, and both says and shows that he is able to move the right upper extremity as well as the left.

On the other hand, the pronunciation of his own name is practically impossible for him, and from questions put, it would seem that he quite understands and wishes to express the fact that the difficulty begins with him at a point anterior to the mere utterance. He says that "he can't get it out," but also intimates pretty distinctly that he cannot remember it, even so far as to *attempt* to articulate it. His actual attempts always end in something like "Machen," which, it appears, is in no sense a real effort at the true articulation of the name (Macmillan), but has been observed since last night as a purely automatic utterance, coming in whenever he is at a loss, as in attempting to read aloud. Directing his attention to various proper names in succession, it is very doubtful whether he recognises his own name among the others, as he constantly reiterates "Machen" after being taken over a number of proper names beginning with "Mac," as Macpherson, &c. More striking still were the attempts to make him recognise his Christian name, and these were equally uncertain in their result, "Machen" being repeated by way of corrections on "William," "Patrick," "John," &c., indifferently. The following are further illustrations of the utter uncertainty of his memory of words and his power to give effect to them. A pencil he calls "Machen;" a key and a knife, on the other hand, he names with distinctness and almost immediately. An ink bottle he at first names "Machen," but afterwards "bottle." When asked what is in the bottle he says "Machen." Shown a penny he says at once "penny." Shown a shilling he hesitates, and comes back to his formula, "Machen," and repeats it with apparent conviction. Further, he states distinctly that it (the shilling) is twelve of the pennies; and ultimately agrees to the suggestion that it is a "bob," but is utterly unable to originate the word "shilling." Shown a halfpenny, he says "hapy," and further defines it as "half-a-penny," but boggles a long time over "halfpenny," and goes on repeating "half o' that" and "half a penny." Shown a sovereign, he at once recognises the value of the coin by saying "Twenty of that," indicating a shilling, but neither names the shilling nor the sovereign. Once or twice his memory apparently carries him a certain length and he repeats "*sh*," but does not go any farther, and finally takes refuge in "Machen." A still further proof of his correct apprehension of value and also of the singular uncertainty of his verbal memory is, that when shown a pound note, says that it is "the same," *i. e.*, indicating the sovereign. He then reads off on the face of the note (apparently without much hesitation) the words, "One pound," and then, "Union Bank of Scotland, Limited;" but although he says "one pound" can't be persuaded to say "one pound *note*." He is also quite at fault in indicating the difference between the metals. He seems to admit that the penny is copper, but equally that the sovereign is silver, and when asked the difference between the metals of the sovereign and the shilling, and told that the latter is silver, again takes refuge in "Machen." Careful examination of the heart by Dr. Gairdner does not reveal any definite murmur. A slight deviation of the tongue need not be insisted upon, as it appeared at one time to be to the right and at another time to the left.

23rd June.—The aphasia has assumed a different form and is in some respects worse as an individual symptom, *i. e.*, the utterances to-day are more absolutely mechanical. To-day also there is distinct deviation of the tongue to the right side, and also a slight indication of paralysis of the right side of the face, and just possibly also of the right hand. Although the movements are free and practically volitional to the full extent, a slight difference can be detected in the strength of the grip of the two hands. His apprehension of words and phrases to-day is much obscured, and it is hard to impress upon him otherwise than by gesture what is wanted in respect of the grasp of his two hands. In respect of verbal utterance to-day he has changed his formula to "Tahair," which he constantly repeats as if meant to do duty for his own name, for Dr. Beveridge's name, for a penny, for a key, and a knife, and other objects about which he had no difficulty three days ago. When asked the difference between a shilling and a penny, shown, he reiterates "Tahair," without a trace of intelligent response or even gesture indicative of the relative value of the two coins. Yet he is neither lethargic nor comatose. During last night it would seem as if he had had another distinct attack. Nothing of a definite character is abnormally wrong with the heart's sounds and, in particular, no A.S. murmur, which was suspected before, can be verified to-day. In making this observation, it is noticed that he follows most attentively, and even anticipates, the wish of Dr. Gairdner to have the chest uncovered, beginning to unbutton his underclothing before he is asked to do so; and apparently not led to do so by any words uttered, but by the fact of bringing the stethoscope. His appearance is placid without being expressionless or vacant; and except when addressed he does not attempt to speak.

24th June.—It is not certain whether there is any positive change in his condition to-day, but it is to be noted that when asked "Are you better?" and "Are you worse?" several times alternately, he does not appear to distinguish between the two utterances, and answers "ss" to both with exactly the same gesture of the head (as if affirming); and for some time it can't be conveyed to him by words that there is any inconsistency in this. A moment later, asked, "Have you any pain?" answered "No," and reverting to the former inquiries, at first responded to them in the same way as before, but ultimately seems to get quite confused, as if he did not know what was meant by each, and was puzzled how to reply. To-day, "ss" seems to replace the formulas "Tahair" of yesterday and "Machen" of three days previous; for on being asked his name replies "ss," and only after repeated and strong interrogations, reverts feebly and momentarily to an attempt at "Tahair," which is immediately discarded again for "ss." To-day the facial paralysis is rather indistinct, but the tongue deviates distinctly to the right side on protrusion. In taking this observation it is to be noted that the utmost distinctness of merely verbal utterance, on asking him to put out his tongue, though reiterated many times slowly and emphatically (but without a gesture indication), is disregarded or only elicits "ss;" but when aided by gesture he complies with the request, and so smartly as to show that the former difficulty was from no lack of volitional activity or general intelligence, but simply from the loss of apprehension of words spoken, thus contrasting strongly with his state a few days ago. This contrast is more clearly brought out by the fact that on being shown a one pound note and also a five pound note, and asked to indicate the difference, he begins apparently by reading the words, pointing with his finger and saying "ss, ss, ss," without any attempt to get beyond it; and finally notes with his finger the mark "£1" in the corner and emphatically indicates it with "ss" just like the other words.

27th June.—Since last note the improvement in the intelligence has been continuous, though slow. His apprehension of spoken words, although it does not elicit verbal answer to any query, now develops on his countenance a much more intellectual cast than was noticed three days ago. Suddenly this morning, at 3·30 A.M., he became worse. He could neither by words nor repeated gestures be made to understand that he was wanted to put out his tongue. The head was noticed to be turned violently to the right side. Nystagmus was also noticed, and there were convulsive twitchings of the right arm and right thigh. This continued up till 4 A.M., when his left side began to twitch. By this time the twitchings on the right side had ceased. The face was affected in both instances by twitchings rhythmical with those of the limbs. At intervals of five minutes or so general convulsions shook his frame. Examination of heart still reveals no definite change in the cardiac sounds.

On 28th June patient died. Nystagmus continued almost up till death, although the general convulsions and twitchings of arm had ceased since yesterday forenoon.

Note by Dr. Gairdner.—It is much to be regretted that in this case the physiological and pathological value of the report is so much impaired by the want of a *post-mortem* examination; but even as a clinical narrative, the facts seem well worthy of being thus placed on record, to be used in connection with other cases of total and partial aphasia as illustrating the share taken by verbal amnesia on the one hand, and difficulties in the apprehension or utterance of the verbal symbol on the other, in giving rise to aphasic phenomena. In this case there can be no doubt that all the functions of the (assumed) *speech centre* were more or less involved in the morbid process, but with a curious discrepancy as regards individual words and verbal formulæ at different periods; and the state of the patient's intelligence throughout (up to the last quasi-epileptic seizures), together with the absence of any such hemiplegia as was likely to have impaired the mere motor co-ordination of the muscles concerned in speech, leave the field open, as it were, to a peculiarly just appreciation of the different functions comprised in the reflexes of the "speech centre," and also its function of connecting the verbal symbol with the idea arising in the mind. The object of this report is not to set forth any new theory or doctrine, but to place the facts within the reach of those most interested in the subject, and in a form to elicit, if need be, further inquiry before the minuter details have passed out of memory.

P.S.—Since writing the above, I have had the great advantage of communicating with Dr. James Ross of Manchester on the views that may reasonably be entertained, in the present state of scientific information, as to the pathology of this case; and, although I presume he would consider the opinions expressed perhaps too hypothetical to be insisted on in detail, in the absence of positive facts, I am unwilling to withhold the substance of his letter to me from the reader. A lesion that will produce (as on 19th June) *a*, well marked sensory (amnesic) aphasia, almost or altogether without paralysis, and at a later date (23rd June) *b*, motor (ataxic) aphasia, with an appreciable amount of facial and lingual paralysis on the right side, must necessarily have involved in succession corresponding areas of the brain—viz., *a*, the area of distribution of the parieto-sphenoidal and sphenoidal branches of the left Sylvian artery, and *b*, that of the inferior frontal branch of the Sylvian artery. On referring to the relative position of these branches and their relation to the main artery (*a*, being the more remote, and also more in the direction of the axis, while the ascending frontal and parietal branches are given off between *a* and *b*), it will be at once seen that it is difficult to conceive of any single embolism or vascular obstruction which could have produced the succession of functional phenomena here recorded. Even had a limited and single embolism taken place, in the first instance, at the position *a*, and been succeeded by a thrombus extending back so as to occlude *b*, it must, in all probability, have also occluded the intermediate branches of the Sylvian artery, and so produced unconsciousness, with well marked right hemiplegia and total aphasia. "The embolic theory, therefore, presents many difficulties already, but appears to break down completely when applied to the explanation of the terminal symptoms. On 27th June the patient is found in a state of total aphasia, with his head violently turned to the right side—that is, away from the lesion and towards the unaffected side. The rotation must therefore have been caused by spasm, and not by paralysis. The limbs of the right side are also slightly convulsed. Nystagmus is said to have been present, possibly consisting of a clonic spasmodic conjugated deviation. Thus, the patient suffered from general convulsions, and finally from a paralytic attack. The occlusion of the Sylvian artery, either by embolus or thrombus, would have been most unlikely to give rise to such marked spasmodic phenomena. On the whole, the theory of a tubercular meningitis would be more likely to explain the symptoms."

PRIVATE PRACTICE.

By Mr. James Mason, L.F.P.S.G., Landport.

Value of Antimony in the treatment of Psoriasis.—The following case is recorded to illustrate the remarkable efficacy of antimony in the treatment of that occasionally very intractable, and always troublesome disease, psoriasis. From the fact that this mode of cure is not mentioned in any of the text-books I have consulted, I am afraid that it is not so widely known as it should be. In some of the most inveterate cases it acts like a charm. Its rapidly beneficial action was especially well shown in the case of John ——, æt. 15. For the last year and a half he had been troubled with a "scaly skin," which gradually got worse, until about three months ago it got so bad that he consulted a medical man, under whose treatment he remained for eight weeks without deriving any benefit whatever. When I saw him there was scarcely an inch of his body unaffected, his face not excepted. He was put on five minim doses of vin. antim., and in one week his face and head were almost entirely free from scales. The dose was increased to ten minims four times a day during the second week, and now (the end of the third week) all trace of the disease has vanished, with the exception of a small white patch on his right elbow. As I consider this a much more pleasant and effectual mode of treatment than any of the usual remedies—namely, tarry applications, arsenic, or cod liver oil—I venture to hope that it may come into more general use. I may add that this method of treating psoriasis has been practised by Dr. Cavafy, of St. George's Hospital, London, for some years.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY.

SESSION 1884-85.

MEETING VIII.—*1st May, 1885.*

PROFESSOR MACLEOD, *President, in the Chair.*

THE PRESIDENT read ON EXCISION AS A REMEDY FOR CANCER OF THE BOWEL, with a record of cases. (See last month's *Journal*, p. 210. (To be concluded next month.)

Mr. D. N. Knox said that the paper was exceptionally full and exhaustive, even for a paper of Dr. Macleod's. His (Mr. Knox's) own experience had been much less extensive; but during the last winter he had seen five cases, two of which had been operated on by himself, and two by Mr. Clark. In all of these the cancer came down to the anus, and in two of them outside. They had all the characteristics referred to by Dr. Macleod—the infiltration of the tissues high up, the affection of the glands of the groin, the bleeding, cachexia, &c. One of his cases left the hospital yesterday, quite well. He removed the bowel with the scissors, arresting the slight hæmorrhage by a touch of the actual cautery. For such a severe operation the bleeding was inconsiderable. That case had been sent in as one of fistula, there being three or four fistulous openings communicating with the outer surface and with the bowel, the cancerous tissue following the line of the anus. In regard to the question of heredity, it was frequently difficult to arrive at facts bearing on this point; but occasionally they were found. At that time he had in the hospital a woman 33 years of age, whose breast he removed for cancer; while her mother died of the disease at the age of 31. In another case he removed from a woman, aged 61, a cancerous breast; her father died of cancer of the liver. Other cases of the same kind he could quote.

Mr. Maylard said that it was very remarkable that Mr. Smith, in the last edition of *Holmes's Surgery*, still adhered to the opinion that in cancer of the rectum the cases were most commonly those of scirrhus. Mr. Cripps operated on a number of cases, which were those of typical cylindrical epithelioma. He had himself seen several cases, all of the same kind. In regard to the last case of Dr. Macleod, the operator had expressed himself doubtful whether the whole affected bowel had been removed. He (Mr. Maylard) made an examination with a view to satisfy himself on that point, and found that the limit of the diseased structure had been reached. This point was of importance, because if it were known that the diseased bowel could not be absolutely removed, it would be better not to operate. The existence of the disease above, and the cicatrix below, would make matters worse than they were at first. The use of the scissors was, in his opinion, preferable to that of the ecraseur. In operating on the tongue they were familiar with the fact that in tightening the hold with the latter instrument there was a tendency to drag the organ down. In this respect the scissors had the advantage.

Dr. Stirton said that, with a large experience in malignant disease of the pelvic organs, he had operated in two instances of malignant disease of the bowel. The first case acted as a deterrent from operating for a considerable time. The second case, however, was operated on with the best results. The disease was confined to the posterior part of the rectum. He used blunt scissors and the thermo-cautery. The part sloughed in the course of two or three days. As regards the case of Jack detailed by Dr. Macleod, his experience was that where, as in that case, there were detached nodules detected by the sound, and a condition of cachexia, it was better not to interfere. The presumption was that there was infiltration of the liver and of the bladder to some extent.

Dr. Macleod said that he regretted there were so few surgeons present, as his purpose had been, in reading the paper, chiefly to invite criticism and to bring out the proportion of cases in which there existed conditions favourable for operating. He was strongly of opinion that when the disease was high up the case should not be touched. Even with his past experience, it was possible that he would not now touch a case like that of Jack. The number of cases of cancerous disease of the rectum, or of disease uterus involving the rectum, which he had seen, wa considerable—much larger than one would at first supp In how many of these cases could an operation have done either by prolonging life or relieving pain? The here nature of the disease he did not question, but he mer inted out that it was generally difficult to obtain the fa at bear on it.

NOTES FROM NA.

CASE OF NEPHRECTOMY FROM WARDS OF PROFESSOR BILLROTH.—By Dr. Alexander Br r.

V. M., aged 42, was admitted, g suffered since March from pain in the right hypoc rium, at first only on exertion, but latterly also when est. Shortly after the pains commenced, she discovered our the size of a walnut below the right ribs. Fou eks later it had grown to the size of a man's head. Urine was cloudy, having filaments running through it; tanding for some time it deposited a sediment. Fever s occasionally experienced, appetite was diminishing, and ness was often present.

Admitted at first to the dical department, Professor Bamberger diagnosed a tumo of the kidney, and she was transferred to Professor Bill 's wards.

On examination, respirat and circulatory systems were healthy. The abdominal alls were moderately distended. Towards the right side of e abdomen a tumour, as large as a child's head, could be fe esistent and sensitive to pressure. The anterior rounded b er reaches as far as the navel; the lower extremity is in e neighbourhood of the iliac fossa. The upper border is vered by the liver. The exterior and posterior limits ca be traced in the lumbar region. The tumour is slightly ovable, but does not alter its position on inspiration. Vagi and rectal examination reveal nothing. The note of perc sion over the tumour is shallow (leer). Between the dull egions of the tumour and liver a small tympanitic area, t -fingers' breadth, is observed. The urine is muddy and sligh y acid, containing a sediment of pus cells. The quantity in twe y-four hours is 1,000-1,200 cc.

Sounding of the u ters by Dr. Pawlik gives the following results. Clear acid urin flows through the sound introduced into the left ureter, in whi a film arises after standing for some time. Microscopic examination reveals epithelial cells and red blood corpuscles; no pus cells are present. From the right ureter nothing could be obtained. On withdrawing the sound the eye of the instrument was found to be plugged with a small mass of pus. A short time after the sounding the pus in the urine was greatly increased in amount. Temperature, during the time of observation, varied from 37·4° to 39·2° C.

Physical examination had thus proved that the tumour was connected with the right kidney, that pus was present in the pelvis of that kidney, and that the urine from the left kidney was of normal constitution.

Having regard to the condition of the patient, and to the danger of septicæmia, extirpation of the right kidney was recommended and carried out on the 21st May. On grounds which Professor Billroth has previously announced,* extirpation was performed by a lumbar incision. Between the tumour and the abdominal wall it could not be demonstrated that intestine was present, therefore one might expect a considerable separation of the parietal peritoneum at this point.

Under chloroform, the patient lying on the left side, with the thigh bent, the incision was made, beginning at the extremity of the 12th rib, and running for 15 cm. in a forward and downward direction towards the *crista ilii.*

On exposing the tumour, it was seen to be invested in a hard white glistening tissue, and pushing forward the peritoneum of the posterior abdominal wall. A trochar was now inserted into a fluctuating point and 300 ccm. of stinking thick pus were removed. It was observed that the tumour consisted of a series of abscesses, as by diverting the point of the trochar in different directions, additional pus could be obtained. The collapsed tumour was now well pressed, and a clamp applied to the opening. Its posterior and anterior surfaces were now freed by the fingers from all adhesions, when, as the operator was examining the pedicle of the tumour, a dark stream of blood was seen. The assistant, by pressing the bleeding vessel against the abdominal wall, succeeded in arresting the hæmorrhage. The tumour was now very speedily separated from all attachments at its upper extremity and so drawn aside that its pedicle could be clamped. Hæmorrhage, however, did not cease, the veins had apparently been torn at a deeper level. The moment was very critical, the bleeding vessel was lying beneath the fingers of the assistant, and he could not in any way remove them. After several clamps had been ineffectually applied, the operator was fortunate in stopping the hæmorrhage by inserting the point of his finger into the gaping vein. Two ligatures were then applied, and as bleeding had not yet quite ceased a third ligature was applied immediately behind the opening into the vein. A ligature was then applied to the pedicle of the tumour behind the clamp, and the cavity filled with iodoform gauze. Two drainage tubes were inserted, and deep sutures applied to the abdominal incision.

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* *Wien. Med. Wochenschrift*, 1884. Nos. 23, 24, 25.

After being put in bed, the patient so far recovered as to speak a few words to the attendants. Half an hour later she began to sink, the pulse could not be detected, the respirations diminished in number and finally ceased. As the heart continued beating, and collapse was evidently due to want of blood, artificial respiration, and autotransfusion by bandaging the extremities, were performed. 1,300 cc. of a 7 per cent solution of salt, warmed to 38° C. were injected into the right median basilic vein. The pupils became smaller, intraocular pressure was increasing, and the lips became redder. Artificial respiration was suspended as patient drew several breaths of her own accord. Improvement was, unfortunately, only momentary. All further attempts at reanimation failed, and 1½ hours after the operation had been completed, patient had breathed her last.

Examination of the kidney, which was three times the normal size, disclosed pyelonephritis calculosa.

The kidney was transformed into a hollow sac, the walls of which were lined by a diphtheritic material. Interiorly, besides stinking pus, there were fifteen phosphatic calculi of larger and smaller size. The exterior of these was brownish. A rounded calculus lay in the outlet of the kidney almost completely blocking it. A shallow depression on the surface enabled the pus to escape, which was discovered in the urine.

The capsule of the kidney was surrounded by a hard callous tissue, and was closely adherent to its cortical substance. At the extremities of the kidney it was 1 cm. in thickness, and very callous in structure. The hilus was also filled with the same material in which the arteries and veins of that region were embedded. So closely were they united that they could not be removed without injury to their walls. The ureter was attached to the inner margin of the kidney.

Post-mortem examination performed by Dr. Ziemann gave the following interesting results.

"The peritoneum of the posterior abdominal wall was torn from the ascending colon to the extent of nine or ten inches, the borders of the rent showed bleeding points. Loose blood clots were lying in the right side of the peritoneal cavity between the loops of intestine. In Douglas' pouch lay 300 cc.

of blood partly coagulated. A small bundle of tissue as thick as a man's finger was found lying on the vertebral column surrounded by three ligatures, this proved to be the vena cava. The upper ligature was applied at the level of the renal vein, so that the left vein was below, the right above the ligature. The left renal vein was distended to the dimensions of a small finger, and was filled with blood. Above the ligature the vena cava was in a collapsed state, and on the right wall there is a rent with irregular edges, reaching from the ligature as far as the liver. The supra-renal bodies are in their normal position, surrounded however by torn cellular tissue. At the upper extremity of the kidney, there is a round mass of reddish cellular tissue in loose connection with the vessels of the kidney.

"Below the ligature the vena cava is much distended with blood, above this it is empty as far as the heart. The left kidney is enlarged, but of normal texture and colour. At the lower end is a small unilocular cyst filled with clear serum."

In spite, then, of all precautions, the parietal peritoneum was torn, probably by the rapid removal of the kidney, during the hæmorrhage. The examination of the pedicle by the fingers during the operation had apparently somewhat dragged it, and the renal vein was torn, where it unites with the vena cava. It is also possible that separation of the upper extremity of the kidney to which the vena cava was closely attached may have conduced to the result.

On examining the seat of the tumour it is noticed that on withdrawing the kidney from the abdominal cavity, through the oblique lumbar incision, the vena cava can readily be displaced from the vertebral column, enabling the operator to insert his finger around it. Thus the portion of vena cava lying beneath the renal vein is drawn out of the vertical direction, and lies in one more horizontal, similarly to the renal vein, from right to left. It was thus that the vena cava could be compressed by the assistant against the abdominal wall, a fortunate coincidence as compression is easy and certain. But on the other hand, the altered course of the vena cava rendered the source of the hæmorrhage more obscure. Indeed, without the further examination which this case afforded it could not have been determined. The operator had inserted his finger into a vessel running from right to left, and supposed naturally that he had plugged the renal vein, instead of, as it proved, the vena cava. The hæmorrhage into the abdominal cavity showed clearly that patient had died from anæmia.

It is remarkable that the rent in the vena cava, 8 cm. long and 1 cm. wide, being so close to the diaphragm, was unattended with any special symptoms. It seemed probable that hæmorrhage would have arisen from the torn vein, for although regurgitation could not have occurred from the right auricle of the heart, accumulation of blood in the liver might have been expected, and thus have caused hæmorrhage from the central portion of the vena cava. Notwithstanding, the upper portion of the vena cava was on *post-mortem* found to be empty, nor was there a large quantity of blood in its vicinity.

Lücke has assumed in explanation that the negative blood-pressure in the vena cava prevented blood from flowing through the aperture in the vein. This would also cause the sides of the vessel to lie closely applied to each other, thus preventing æration of the blood. Thus, although artificial respiration was energetically carried out, the blood could not come into proximity with the air. The weight of the intestines also retained the vena cava in a compressed state. In addition, a portion of gauze was found lying on the vessel also tending to keep it collapsed.

After the experience which this case affords, it is evident that owing to the hardness and distension of the paranephritic tissue, in which the vessels of the kidney were embedded, we will operate with least danger by means of an incision, which, without undue pushing or tearing of the tumour, permits of a survey of the condition of the root of the kidney. This is best attained by the incision, according to Langenbeck, at the lateral aspect of the rectus, though with the drawback that the parietal peritoneum, anteriorly and posteriorly, must be divided. Pus may by these incisions reach the peritoneal cavity. The diagonal lumbar incision is without this drawback. Were it prolonged downwards and forwards, parallel to Poupart's ligament, as far as the inguinal canal, as Professor Billroth has described, the vena cava could be followed from below upwards, and the root of the kidney clamped at some distance from that vessel. The tumour could then be removed and the pedicle ligatured. The patient's condition is not thus much impaired, as the secretions from the wound could most readily escape.

It is important that whatever difficulties arise in dealing with the hilus of the kidney, the tumour should be removed from its seat with the greatest caution. Many ligatures should be employed to form a broad pedicle, even though there arises thereby the danger of leaving a portion of kidney tissue behind.—*Wien. Med. Wochenschrift.*

Laryngoscopic Observations relative to the Diagnosis of Tuberculosis of the Larynx. By Dr. Franz Fisher, Assistant in the University.

The following lines do not pretend to announce any new discoveries relative to tuberculosis of the larynx, but only to aid in the diagnosis of early cases of that disease, where the symptoms are as yet not fully developed. The principal conditions met with are the three following—1st. Unilateral inflammation of a true vocal cord; 2nd. The tubercular ulcer and the tubercular abscess situated on the anterior aspect of the posterior wall of the larynx; and 3rd. Thickening of the free upper border of the epiglottis. (Möser.)

1. In this case we see more or less redness of the vocal cord, often, indeed, approaching a cherry colour. This offers a striking contrast to the intact vocal cord of the opposite side. The surface of the cord is no longer glancing and smooth, but appears macerated and as though sprinkled with dust. This condition may be looked upon as preliminary to a local tuberculosis of the larynx, the development of which can be easily followed by us. Türk and Schrötter have asserted that unilateral inflammation of a true vocal cord is characteristic of inflammation of the lung, and that it is always to be found on the same side as the affected lung. Cases do, however, occur in which the inflammation of the cord and of the lung are on opposite sides. Even these cases are exceedingly suggestive, as our attention is drawn more closely to the apices of both lungs. A patient with this condition suffers almost always from a tickling feeling in the larynx, and a most annoying, dry cough, which of itself is enough to draw our attention to the state of the larynx.

2. The tubercular ulcer and abscess on the anterior aspect of the posterior wall of the larynx are, as regards their situation, of great diagnostic importance. When we see this portion of the larynx affected in the manner just described, it will be found almost invariably that tuberculosis of the lung is present as well. In this category we meet with occasional cases of syphilis which imitate the tubercular affection very closely. Antisyphilitic treatment is sufficient to differentiate these.

The tubercular ulcer is characterised by its irregular elevated border occasionally projecting above the surface in a stalactite-like manner. The tubercular abscess may by its mere size occasion great difficulty in speaking, every attempt to approximate the vocal cords being frustrated by the tumour situated between them.

3. The thickening of the free border of the epiglottis was only recently by Möser diagnosed as a feature of tuberculosis of the lung. (*W. Med. Press.* 1885. No. 7.) This observer noticed in early cases of phthisis of the lung, cuneiform or club-shaped thickening of the upper free border of the epiglottis, the mucous membrane meantime being only slightly altered. The other regions of the larynx presented a normal appearance, as also did the true and false vocal cords and the mucous membrane of the ary-epiglotic folds.

There are two affections requiring mention in this place, which, although not exactly similar, may, from the localisation, be mistaken for the tubercular affection. These are seen in advanced cases of tuberculosis of the lung. One of them is paralysis of the vocal cord of the right side, the other, the tubercular tumour described by Schnitzler (*W. Med. Press,* 1844, Nos. 44 and 46) and by Percy Kidd (*Brit. Med. Jour.,* 26th April, 1884.)

When we observe paralysis of the right vocal cord in a patient suffering from tuberculosis, we will, in the majority of cases, ascribe it to tubercular affection of the apex of the lung of the same side. The anatomy of the right recurrent nerve shows that it lies between the right subclavian artery and the apex of the pleura. Owing to this, infiltrations affecting the pleura may extend to the nerve and include it in their grasp. Semon and Rosenbach have observed that it is the fibres supplying the dilators of the glottis that are chiefly thus affected.

There arises accordingly paralysis of the right vocal cord. The cord remains stationary in the middle line. During phonation the left cord is capable of approaching it, so the voice remains unaffected. When the thyro-arytenoid muscle is affected we have hoarseness. This may easily arise by extension of paralysis of the recurrent nerve. According to our own experience, it is those fibres of the recurrent nerve supplying the thyro-arytenoid muscle as well as the dilators of the glottis that are first affected. The vocal cord assumes a half-moon shape, the glottis cannot be closed, and hoarseness arises. If the affection of the recurrent advance further we may have complete paralysis of the vocal cord, as is occasionally seen on the left side owing to aortic aneurism.

The tubercular tumour is a rare form of tubercular affection of the larynx. It is seen in pronounced cases of tuberculosis of the lung, and is not difficult to diagnose. According to Schnitzler and Kidd the tumour may attain the size of a pea, bean, or hazelnut.—*Wien. Med. Wochenschrift.*

MEDICAL ITEMS.

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

The Basal Pathology of Chorea.—Dr. H. C. Wood has communicated to the College of Physicians of Philadelphia his conclusions concerning the basal pathology of chorea. As paralysis is but the clinical expression of many pathological states, so also does he regard chorea. In the so-called cerebral or post-hemiplegic chorea there appear violent convulsions with choreic movements, which Charcot has attributed to a lesion situated in the corona radiata, near the lenticular nucleus, the existence of which he has been able frequently to verify *post-mortem*. But, on the other hand, similar symptoms have been found associated with a lesion in the external capsule, and in the cortex; and again in the *Compt. Rend. Société Biolog.* of Paris a case of typical post-hemiplegic chorea, having absolutely all the features of organic hemiplegia with chorea, has been reported, in which the most careful examinations, made by thoroughly competent persons, failed to show any lesion whatsoever of the brain. Here there had been a previous history of hysteria.

In the chorea of children capillary embolisms of various portions of the brain, especially of the corpora striata and optic thalami, but also of other portions, have been frequently found *post-mortem*; but here also there are other cases in which no lesion could be detected, and the clinical history of chorea in childhood shows conclusively, according to Dr. Wood, that it may exist without any organic lesion which can be detected.

"We have it developing in a moment from emotion, passing off in a few days, and affected immensely by a few doses of arsenic or other agencies which would be powerless to affect any severe lesion."

Experiments on dogs (in which choreic movements are generally rhythmical) have shown that these movements originate in the spinal cord, "in all probability in the motor cells." Both Dickinson and Ross report serious lesion of the cord, and Gowers and Sankey had previously described a "leucocytal infiltration" of the cord, but Dr. Wood is unable to recognise the changes observed by himself in their description of this condition. Not only the spinal cord but the whole nervous system is pervaded by this lesion.

The history of chorea he conceives to be this. Owing to emotional disturbance, stopping up of various vessels of the brain, or to the presence of organic disease, there is an altered condition of the ganglionic cells throughout the nerve centres. Up to a certain limit this change is structurally inappreciable, the disease is "functional;" beyond it the change can be recognised, and we have an organic disease of the nervous system.

The capillary emboli, clots, tumours, and various gross lesions which have been found in chorea are not in his opinion the basal lesion, but the cause which produces these changes is in the cells, which are at the bottom of the choreic movements.—*Medical News.* 30th May, 1885.—A. K. C.

The Inhalation of Defibrinated Blood.—Fubini, of Palermo (*Centralbl. f. d. Med. Wissensch.; Dtsch. Med. Ztg.*), has performed numerous experiments on both healthy and anæmic subjects for the purpose of determining whether defibrinated blood can be introduced into the system through the medium of the respiratory tract. He employed a mixture of twenty parts of defibrinated ox blood, and eighty parts of a 0·75 per cent solution of salt. This was introduced into the lungs by means of an atomizer. No irritation was observed, and the pulse and respiration were unaffected. After a number of inhalations, anæmic patients improved decidedly, and the number of red corpuscles was notably increased.—*New York Medical Journal.* 30th May, 1885.

Iodoform in the Treatment of Gout.—Testa (*Gaz. Med. di Torino; Dtsch. Med. Ztg.*) has published the results of a series of careful observations, both experimental and clinical. He finds that this drug increases the amount of uric acid excreted, and accelerates the processes of oxidation. The amount of oxalates is diminished, even when food is taken which is rich in oxalic acid. In cases of gout the writer employs daily doses, varying from one to four grains, which, he maintains, may be continued for months without general disturbance. Under the use of iodoform the attacks become less frequent, and their duration and intensity are lessened. Stress is laid on the fact that the presence of renal disease is a contra-indication to the employment of the drug, the danger being that it will not be eliminated, but will be retained in the system and give rise to toxic symptoms.—*New York Medical Journal.* 20th June, 1885.

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ORIGINAL ARTICLES.

ON THE *VIS MEDICATRIX NATURÆ.*

By J. WALLACE ANDERSON, M.D.,
Physician to the Royal Infirmary.

(Being the Introductory Address at the Opening of the Session in the Royal Infirmary School of Medicine, 27th Oct., 1885).

Gentlemen,—It was with much misgiving that I set myself to the preparation of an introductory address. The atrocious crime of being not an old man is terribly aggravated in one who stands in the position I do now. Some of my colleagues have felt this, and have modestly given their "introductory" with the introductory element left out. I shall be modest too. You would know what I mean had you listened to such an address as the late Dr. Fleming gave a few years ago at the inauguration of our school. A long and varied experience of social and professional life, a mind fitted to learn and impart its lessons well, and a heart like his, generous and sympathetic towards those who were entering or had just entered on his old familiar path—all that must be his who would give a real "introductory."

I must content myself with speaking in the main of a purely medical question; but I have selected one of the widest scope and interest, a great principle or factor underlying all our practice; the centre, source, and measure of such success as may attend our art; what I may call, but meanwhile under protest, if you choose, the *vis medicatrix naturæ*—the healing power of nature.

In the early part of this year I laid before the Glasgow

Medico-Chirurgical Society some views regarding the specific origin of disease.* And some of you, I fear, have heard me speak till you are wearied of germs for this, and that, and the other malady ready to attack us from every side. But all that is past. I wish now to direct your attention to the other side in the contest; to the opposing force. It has been rather overlooked in the great controversies of late regarding microbes and spores. If you are not all familiar with the investigations of Pasteur, you have all at least heard of Lister's method of dealing with such of the marauders as invade the realms of surgery. And I suppose every one has heard of Koch's germ discoveries, or supposed discoveries, in consumption of the lungs and in cholera. People became alarmed about their lungs; it was the latest comet that was going to destroy the whole universe of humanity. But we are all alive yet, and some are getting a little of their courage back, and are talking rather lightly of these germs. A few knowing ones have declared their readiness to swallow a hatful of them if presented in a sufficiently palpable form. But all this is beside the question to you and me. The accident of my having given a general adherence to the germ theory of disease from a medical standpoint led me to think that the opposing force might form, as I have said, a fitting subject of consideration to-day.

It has been said that force is no remedy. That may be so in morals, but not in medicine. And we are going to speak for a little of *a* force which is emphatically *the* remedy; the absolute *sine qua non*. First, a few words as to its history.

The germs have only been recognised as factors of disease in our own day, but as disease itself has been always with us, so has the power of recovery; and as the earliest physicians had eyes and brains as serviceable as ours are, they recognised this power of recovery and began to formulate their opinions about it. We need not go farther back than Hippocrates, who was born about 460 B.C. Whoever were his teachers, and however much he was indebted to these clinical records that we know had been carefully preserved through many previous generations in the sacred temples of Cos and Cnidos, he was himself such an observer of nature and the natural history of disease as left him no rival for centuries to come. But he could think as well as observe, and his reflections or aphorisms will never become old. One of these will suffice us for the present; it is short and to the point—"Our natures are the physicians of our diseases." Before his time there existed a belief in a kind of spiritual essence which aimed at restoring what was deranged to its natural state; but he, or possibly one of his immediate followers, formulated the opinion as I have given it.

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* *The Lancet*, 2nd May, 1885.

By nature Hippocrates meant natural force; the power by which the existence of organised beings is maintained or their injuries repaired. A distinct departure from this view was made by Aristotle in his *Treatise on the Soul*. He considered the soul to be the vivifying principle or vital energy common to all organised bodies; and the *vegetative* soul was the part that controlled the functions of nutrition, and so far corresponded to what Hippocrates understood by nature. This was the beginning of a philosophical speculation that was to obscure down to our own day the idea of a simple general principle entertained by Hippocrates. In place of considering the power as but a part of a general vital energy, it was viewed as something distinct from the material frame, as an *anima* or spirit which presided over and directed the functions of the body. This doctrine, as I have said, has made itself felt almost down to our own time. Less than 200 years ago Stahl maintained that the soul being independent of the body, exercises like a rational being a complete intelligence and absolute power over the body. Stahl was a careful observer; he seems to have studied the natural history of disease, but this theory of a special power outside and independent of the body did much to mystify and throw doubt upon the principle as taught by the father of medicine.

Sydenham, the English Hippocrates, who lived shortly before Stahl, took a plain practical view of the matter. He appreciates the great doctrine of Hippocrates, that our natures are the physicians of our diseases; declares that nature is of herself sufficient in all things against disease, and as for treatment, that "that practice and that alone will do good which elicits the indications of cure out of the phenomena of the disease itself;" a proposition which, in slightly altered terms, has been set forth by several writers of our own day. We shall refer to it again later on.

The last classical authority I shall instance is Cullen, the great Scottish physician of the latter half of last century, and admittedly the greatest medical authority of his time. No one knew better than he the history of medical thought and opinion. He fully recognised the healing power of nature, and often refers to it. He not only coincides with the views of Hippocrates as to nature's recuperative power, but sometimes uses almost the same words, as when he says, "In every fever which has its full course there is an effort of nature of a salutary tendency." But, on the other hand, he says, "The general doctrine of nature curing diseases, the so much vaunted Hippocratic method of curing, has often had a very baneful influence on the practice of physic, as either leading physicians into or continuing them in a weak and feeble practice, and at the same time superseding all the attempts of art." This may be so far explained by supposing that he merely referred to the danger of following out what was termed, even before his day, a purely expectant treatment. But he goes much further. The vis medicatrix naturæ, he says, "must be received as a fact; yet, whenever it is admitted, it throws an obscurity upon our system, and it is only where the impotence of our art is very manifest and considerable that we ought to admit of it in practice." We have not time to examine critically this last statement. It cannot all be satisfactorily explained away. Probably, as his biographer, Thomson, remarks, it was made somewhat rashly. Cullen undoubtedly believed in nature's restoring power as taught by Hippocrates. But he lived in an age when the belief in the reality and power of the medical art was again in the ascendant, and he led in that as in everything else relating to medicine. One is tempted, too, to think that Cullen did not attach quite a general idea of vital energy to the action of the *vis medicatrix.* While he had no sympathy with the old notion of the soul's governing the whole animal functions, he appears to have believed in some power, *sui generis.* For example, in speaking of the medical effect of narcotics, he says, "It seems necessary to assign some other cause than the directly stimulant power of the substance applied, and this cause appears to be that resistance and consequent activity which the animal economy is suited to oppose to every application that has a tendency to hurt it." He appears to believe, you observe, in a special power which the animal economy can call forth "to oppose every application which has a tendency to hurt it." Certainly he believed in the resources of our art first, and in the *vis medicatrix naturæ* second, and would, I think, have considered depending on the latter very like what some people now-a-days understand by "trusting in Providence."

This fragmentary outline of the history of the *vis medicatrix naturæ* leads me now to present this view of it for your acceptance, that so far as Cullen's idea of it being tenable, this power, call it by any name you like, must be, must exist, or we as physicians, or anything else, are nowhere. It may be thwarted, arrested, or crushed by disease, but if hopelessly crushed hope itself is gone. That, and nothing short of that, is the view I would have you take, the position I would commend to you in all your future practice. I am not going to enter into any kind of speculation as to what that force is. I shall not even attempt to define it any more than I would attempt to say what life is. As Cullen says in his study of the febrile state, "My anxiety is not to find out *how* it happens, but to find out *what* happens." I shall now, therefore, give you some examples of the manner in which this force acts, taking one first from surgery.

A man gets a thorn into his hand quite under the skin. It is not extracted, but it cannot be allowed to remain there. What happens? Inflammation is set up, suppuration takes place around it, the skin over it dies, gives way, and the thorn is floated out along with all the mess it has made. In fact it created a disturbance and was turned out. No doubt it smashed a few things in the process, but that is willingly and quickly put right at the expense of the proprietor. This, you see, is a very summary and effectual ejectment on the part of the *vis medicatrix naturæ.*

Take another example. The walls of an artery, through injury or disease, begin to yield at a particular point under the normal pressure of the blood; a sac is formed, communicating, we shall suppose, by rather a small orifice with the artery. What probably occurs is this. The blood in coming in contact with what is to it a new, a strange, an *unnatural* surface—we can give no other explanation—begins to coagulate in a thin film over the walls of the sac, and layer after layer is formed till, in some cases only too exceptional, the entire sac is filled up and a spontaneous cure effected. Or again, disease is making its way through the tissue of the lung in the direction of the pleural surface. If that membrane be perforated there will be a terrible catastrophe. This must be anticipated. An antecedent inflammation is set up, lymph is thrown out, and possibly the visceral and parietal surfaces of the pleura are so firmly bound together that the admission of air into the pleural cavity is prevented. The same thing is brought about, if nature only gets time, in many other circumstances, *e. g.*, in gastric or intestinal ulceration. All this is as old as the hills, I mean the knowledge of it, but these examples are among the most striking you can have, and I want you to think about them, with the hope that other less conspicuous illustrations will suggest themselves to you.

Then there are examples of a more general character, such as the ejection of indigestible food, the diarrhœa of dropsy, and, as I believe, the sweating of acute rheumatism. I mean to say that I consider the sweating of acute rheumatism an effort of nature to get rid of the poison. To the skin first, and apparently, but a long way second, to mucous surfaces also, Nature carries the poison of disease in the hope of getting rid of it altogether. The skin particularly is a kind of dust-bin to the animal economy. Hence the various eruptions which we see. Pain itself is a *vis medicatrix naturæ.* It enforces the repose that may be the one thing needful for the recovery of the diseased parts, or, to give a particular example, it may prevent a child with rickets from walking when to do so would certainly increase the deformity of the legs. Loss of consciousness, though in itself an evil, is, I believe, an illustration of the same power; an indication of what was intended for good. An ordinary epileptic attack would be a very painful thing, and therefore all the more exhausting, were it not for the loss of consciousness which is one of its characteristics. I give you these examples, gentlemen, for what they are worth and without further remark, for we must pass on to the consideration of other characters of this *vis medicatrix naturæ.*

It is not always equal to the occasion even in the heyday of one's life. Take one more example from surgery, one, I think, which Lister used to give us in his lectures. An ulcer from some reason or other forms upon the leg. Granulations are thrown out, and over them as a pabulum, the ulcer will heal line by line from the edges. But under certain conditions these granulations may become too exuberant. They rise above the general surface, and over them the epithelial cells will not form. Here Nature, we may say, has overreached herself.

Once more, through some diseased condition of the system, perhaps quite localised, the arterial circulation is impeded and the normal impetus becomes insufficient to overcome the obstruction. "More power to you," says the system, and the heart, of course cordially, responds. Its muscular walls begin to thicken and strengthen, but this very hypertrophy, if long continued, will in turn be its own destruction, or the very increase of power may prove disastrous to the possibly already weakened arterial walls.

The sweating of acute rheumatism is a well directed attempt at getting rid of the poison; that of acute tuberculosis is a misdirected one. It is well that the poison of fever should escape by the skin, but the eruption of small-pox may of itself, if we can so separate it, be a great aggravation of the attack. It may be that, in some original forms of disease, these and other phenomena have been purely and manifestly salutary, though now, in the variations that have developed from the original type, they are only ineffective or prejudicial.

And lastly, on *á priori* grounds it seems almost a certainty that such a power as we have been considering exists throughout all nature. "It would seem strange," says Sir John Forbes, "if we were to believe the consummation in death to be the work of Nature, and yet refuse her the privilege of restoring health."* We see change and decay around us, but it is only the poet who sees it in *all* around us. Death gains the victory, but not at once. There could be no death were there not life.

Now, gentlemen, I am far from insisting on the precise term *vis medicatrix naturæ.* You see I am not forgetting your possible protests. Call the principle by any name you like, or by no name at all, only think of it as an action which restores, or aims at restoring, a diseased condition to that of health. I am anxious you should note this, because it has been widely and reasonably objected that the term favours, or even implies, the existence of a special power, of a power *sui generis.* The doctrine of a vital principle, Huxley designates "that *asylum ignorantiæ* of physiologists which has so easily accounted for everything and explained nothing." And, again, he informs us, "the essence of modern, as contrasted with ancient physiological science, appears to me to be in its antagonism to animistic hypothesis and animistic phraseology." Well, gentlemen, throw overboard the doctrine of a vital principle if you will, and certainly avoid animistic phraseology, but without imagining you can explain the phenomena of which we have been speaking, by all means observe and study them, and think about them.

The practical bearing of these remarks arises out of the question that now presents itself. If this power or force in nature is the one thing needed, where does art come in, the art that you and I have elected to practise? The cynic will in turn ask us the question, "Does it come in? Does your art come in with any advantage?" I mean, of course, the cynic in good health.

I would remind you, gentlemen, first of all, that art, in the general acceptation of the term, is inherent to man and to him alone; to him alone, because he alone needs it. At least he needs it now. We shall not stop to enquire whether the gift or the need came first. If the gift came first, it created the need for itself. In other words, man differs from the brutes that perish in the exercise of art, and on *prima facie* grounds he needs the exercise of it. As regards the medical art, it is well known that savage tribes, who are by their very natural condition the more defective in its exercise, need its aid so much the less; civilised communities need it so much the more.

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* *On Nature and Art in the Cure of Disease*, London, 1857.

No one will seriously ask the question, does the medical art ever come in with advantage. In what way, then, does it come in? The reply I would emphatically press upon your attention is—In aiding or guiding nature. It must go on the same lines. We must not thwart, cross, or still less obstruct Nature. As Hufeland says, "The physician must not be the *magister*, but the *minister naturæ*." I gave you the example of the too exuberant granulations; how the epithelial cells will not grow over them. Here cicatrisation will not proceed; and, strictly speaking, we cannot make it proceed. But we can remove obstacles in the way; we can *aid* Nature. We touch the granulations with bluestone, they yield, and cicatrisation then advances. In the case of the aneurismal sac in which the clot is forming or trying to form, we know the conditions which favour this, and those which militate against it. We endeavour to obtain the former and remove the latter. Here again we aid Nature, but she does the work. To quote Sydenham's famous dictum once more, "That practice and that alone will do good which elicits the indications of the cure out of the phenomena of the disease itself."

Such, gentlemen, must be the manner of all our practice. We must know *how* Nature does what she has to do, that we may learn *how* we are to help her. We must know *how much* she can do, and *how much* we can help her. No one who takes this view of his position will think lightly of it, nor blame himself if taunted with following a merely expectant treatment. It will be expectant indeed, a constant look out, a looking ahead from

"The deck
To guard the ship from foes or wreck;"

a treatment requiring always the greatest care and calling for the greatest knowledge and skill the observer can command.

Surely, then, it is neither a mean nor a trivial art. It is a difficult art in itself, and the difficulties in its application are as great. These difficulties, which are inherent to any study of the human frame, and much more to our relation to it, are thus summarised by the master mind of Paget:—"It is not only that the pure science of human life may match with the largest of the natural sciences in the complexity of its subject matter; not only that the living human body is, in both its material and its in-dwelling forces, the most complex thing yet known; but that in our practical duties this most complex thing is presented to us in an almost infinite multiformity.

For in practice we are occupied not with a type and pattern of the human nature, but with all its varieties in all classes of men, of every age and every occupation, in all climates and all social states; we have to study men singly and in multitudes, in poverty and in wealth, in wise and unwise living, in health and all the varieties of disease; and we have to learn, or at least try to learn, the results of all these conditions of life."*

The variations or modifications in disease which I merely noted in passing a few minutes ago, are the occasion of difficulties in the exercise of our art. The original intention of Nature's method may become obscured, or her action as a wholesome process frustrated in certain species, though evident enough in the class or order generally. Sweating in fevers as a class is unquestionably Nature's method of attempting a cure, but in some species or varieties, and in many particular instances, it is a serious aggravation of the disease. The lesions of mucous membranes which characterise a certain class of maladies, may, like those of the skin, indicate the mode of getting rid of the poison which Nature adopts, yet lead in special diseases to a dangerous condition or even a fatal issue, as, for example, in diphtheria or enteric fever. Here, as in the case of the exuberant granulations, Nature may overreach herself. The suppuration that floated out the thorn with so much advantage, may be in some other instance futile or perhaps dreaded by the surgeon, as in necrosis of the vertebræ. These are the analogies you must search for and think about. The real indications of the cure from which you are to elicit treatment may lie very deep or even become changed into indications of further disease.

Another difficulty that we meet with may perhaps be presented best in these terms:—The normal condition of the *human* system at least, is an unstable one. It will hardly do to say that we may be ill and yet in a state of health, but it is certainly true that in conditions of our body which are normal, natural, I would almost say healthy, we may have symptoms often supposed to be those of disease. One thing I have learned from my service in the out-door department of this hospital is, that many complaints are but variations in our condition of body within the normal range of what is substantially the healthy state. The human system, like other systems, comes and goes. The body, like the year, has its seasons. Are we bilious or "seedy?" as it is elegantly termed; it is merely our rainy season. A child is pale, and thin, and peevish—now is the winter of its discontent. Time will suffice to bring round the spring again, and the clouds that oppress us will roll by. Am I saying anything derogatory to our art? Who is to recognise such a complaint from a real malady? Who is to know when he should hold his hand? Not the individual himself, not the physician even, if he be careless or superficial; and there will be occasions when even the most skilled are puzzled or perhaps misled.

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* Inaugural Address, International Med. Congress, 1881.

I trust, then, gentlemen, that while you recognise and seek to be ever guided by the *vis medicatrix naturæ* you will not think lightly of the medical art. I shall have surely failed in my purpose if you do so. I have tried to show you how Nature's healing power is the absolute essential; yet is it often falling short and sometimes overreaching the occasion; sometimes wandering into baneful issues. Its mode of working is often obscure and must be sought out with a cunning hand; its field of working, so far as we are concerned, is man himself.

It is to this study I now, in the name of my colleagues and for myself, welcome you. To those of you who are just beginning, I cannot have made myself very clear. But be patient and you will soon learn, if you will. I suppose every man retains a vivid recollection of the day that is yours now. Don't be put out by the difficulties you see before you, or be overawed by the conspicuous knowledge of your seniors. Not brilliant gifts, but steady, honest, daily work, will suffice to clear your path and open out to view the vast expanse of still untrodden ground.

To the rest of you, I would simply give this general counsel, use to the utmost the opportunities that this large hospital offers for personal observation and inquiry. Cultivate with all diligence the habit of observation. Observe, observe, observe. It is a trite remark, but it wears well. At first, no doubt, you will accept without question what you hear, but year by year you will more and more submit every statement and every doctrine to the criticism of your own experience. You must, for the time being, submit to be led, you must believe what you hear; but that, I trust, will be but to heighten and increase the reflex action of independent thought that will characterise your future career.

I have not left myself time to enlarge upon the nobility of the profession you have chosen, and I am not sorry for it. You hear and read enough about that. I hope you will find the players act well their part, and that you will try to be no whit behind the best. Do not magnify your office, is an injunction I have heard twice of late, on occasions something like the present. I think it is an advice much needed by us.

All work is honourable if well done. Keep by all means a high ideal of your vocation; keep it to yourself. One thing in the practice of it I think you will find true—if you have average ability and be kind and courteous, you will get less blame and more praise than you deserve.

I have spoken of nature's power and work. I would not have you misunderstand me. I would not wish that any word of mine induced you to look no higher. Rather am I convinced that the best wish we can have for you is, that all your knowledge and experience may lead you day by day to "look through nature unto nature's God."

Gentlemen, had we lived a hundred years ago, I probably would have been expected to address you in Latin. It is fortunate we live in the 19th century. But I shall leave you with the good wish that Captain Conder, R.E., tells us is inscribed on the walls of a little chapel in an ancient Crusader's castle in Syria—

"*Sit tibi copia,*
Sit sapientia,
Formaque detur;
Inquinat omnia,
Sola superbia,
Si comitetur."

THE TREATMENT OF CANCER OF THE RECTUM BY EXCISION, WITH A RECORD OF SEVEN CASES.—*Concluded.*

By GEORGE H. B. MACLEOD, M.D., F.R.S. (Edin.),
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In the way of treatment, then, what can be done for cancer of the rectum? What can be done short of operation, and what are the limits of operative interference for its removal? That palliative treatment is for the most part very unsatisfactory is well known, but in most cases which come before us it is all that can be attempted, as the disease is too deeply rooted for removal. All palliative measures should aim at soothing the local condition, aiding the function of the bowel, and helping the strength to resist the pernicious influence of the disease on the system. Carefully considered diet must manifestly take a leading part in our scheme—soluble, easily assimilated food which will leave as little for expulsion as possible. Peptonised food comes in most opportunely—fluid beef, soups, jellies, milk and cream, fruit, whey, eggs, game, sweetbread, and a limited allowance of tea, coffee, and cocoa. Stimulants considered with reference to habit and taste; maltine; cod liver oil, too, if it can be taken. Some tonic probably as well, such as effervescing iron and quinine. A simple laxative to render the motions soft, without inducing diarrhœa, which is always harmful. One of the numerous bitter waters, or the liquorice powder or confection of senna do best. The old *confectio piperis* has gone almost out of use. Syrup of scammony, too, is often very manageable. Enemata sometimes give much trouble and pain, but if they can be used they should never be neglected, as they wash out the seat of disease. Thus, linseed tea with Condy's fluid; well strained gruel with salad oil, followed, if pain is caused, by a small injection of starch and liquor opii sedativus, or opium used subcutaneously. No doubt opium administered in any way, but especially swallowed, is followed in most cases by most undesirable effects. Thirst, sickness, and constipation always occur in some people after the use of even small doses of opium, but in others, only much longed-for relief comes from it. A large soft wide-eyed catheter will allow the enema to be well introduced, and if the patient lies on the side when the bowels act, the pain and straining are often much diminished. Much rest in bed with the buttocks raised on a soft pillow, covered with india-rubber sheeting, and a pledget of absorbent cotton, so placed as to arrest the discharge, and perforated pill boxes containing iodine, will do much to promote comfort and destroy the effluvia. Vaseline applied freely is the best remedy for excoriation. But it is as regards removal of the disease I wished chiefly to speak. That in some cases excision is a hopeful remedy there can hardly be a doubt, and that it is now a well established operation its history fully confirms. Since it was first performed by Faget in 1739 it has always been had recourse to at intervals, though it was not till Lisfranc in 1830 countenanced it, that it came much into notice. Of late years, especially in Germany, it has attracted much attention. I am not aware of its having been performed in Glasgow before I myself operated.

The local condition which more than all others would determine for or against an operation, would, of course be the extent of the disease and its seat. Without too fine a definition by lines, it may be said roughly, that when the disease extends beyond reach of the finger, or rather unless the finger can reach up to sound tissue beyond the disease, it is very doubtful indeed whether it should be touched. Of course, I know very well that five, and even five and a half inches have been excised with good results, and that Nussbaum in one instance had the hardihood to excise not only the first and second portions of the rectum, but a part of the urethra, the prostate and base of the bladder, and that his patient recovered; but I also know that many disasters have followed a far more restricted operation than that, and that for one case which succeeds many will fail. We want to determine what is the limit of a safe, hopeful, and satisfactory operation, which does not put the patient's life in danger, and holds out a good chance of arresting for a definite time the disease from which he suffers. The whole disease must be removed with a margin beyond, and no risk run of opening the peritoneal cavity, or causing dangerous bleeding. If the finger can reach well beyond the utmost limit of the disease, and finds smooth sound tissue beyond; if the disease is on one side only (especially the posterior), or if all round, is not too extensive, or too closely amalgamated with the tissues in front—*i. e.*, with the urethra and prostate in the male, and the vagina in the female; if there is no deep ulceration, many fistulæ and much change of texture; if the glands are not involved, and there is no deep pressure, and if the patient is in fair health, of good constitution, and not too much broken down by age or suffering; and if there is no indication of the liver or other internal organ being invaded, then excision is, in my opinion, a fair and legitimate operation. Anæmia is of itself no barrier, but the cachexia of blood poisoning is, if distinct, too serious a warning to be overlooked.

Finally, as to the mode of operating, my experience, limited though it be, has taught me a good deal. The fear of hæmorrhage has suggested all sorts of expedients by ligature, ecraseur, electric and thermal cautery, &c., but if the knife is only used to incise the superficial tissues, and the finger and handle of the knife, with perhaps the sparing use of blunt scissors, made to do the rest, there need be no fear of bleeding. At the last moment the bowel may with advantage be divided by the ecraseur, but even that is not necessary. I have hardly had to tie any vessel, and have never seen any severe bleeding. I never plug the wound. It is objectionable in many ways, especially from its interference with the drainage, and the retention of filth in connection with the large and absorbent open surface. An important part of the early incision is to extend it forwards and backwards freely in the middle line. Backwards it should go to the tip of the coccyx, which has even been removed to give more room. If the operation be confined to the lower portion of the bowel, however, as I think it should be, such interference with the coccyx is unnecessary. Whenever the incision forwards and backwards, and round each side of the anus, so as to isolate it, has been made, it is a great help to insert four strong whipcord loops with a curved needle, one at each corner as it were (two above and two below), passing from the incision into the interior of the bowel and out at the anus. By knotting the free ends of each of these four ligatures four loops are made, which give one great power in the subsequent separation of the gut, and when all are united in the left hand and drawn upon, the bowel can be well stretched and steadied, and so the later steps of the operation much facilitated. Whenever we penetrate the cellular bed outside of the bowel, the finger readily separates the gut round and round except in front, when there are adhesions there. A catheter inserted into the male urethra, or the finger into the vagina, will define and steady the parts, and allow of the necessary care being taken to separate them. A snip with blunt-pointed scissors will occasionally be necessary in doing this. As the main artery lies in the middle line behind in the wall of the bowel itself, it need not be opened at all till we divide the gut transversely just before removal. With the left forefinger within the bowel and the right used to separate the parts, while possibly an assistant keeps the loops of cord tense, there is usually very little difficulty in clearing the bowel to a point well above the disease and beyond the utmost deposit which can be distinguished. If close adhesions exist behind about four inches from the anus there will be a risk of bleeding if we are not careful, as there the main blood-vessel divides; but if a free incision has been made backwards, so as to lay the parts well open, there should be no difficulty in securing it. If the operation be restricted, as I advocate, to the lower portion of the rectum, it will matter little whether the bladder is full or empty; but if a higher portion is to be dealt with, then, as Dupuytren long ago showed, the urine should be retained, so as to raise the recto-vesical pouch.

The ecraseur or the thermal cautery are efficient methods of dividing the bowel transversely when entirely separated all round, and if the former is used the gut should be split and removed in two portions, so as to avoid all annoyance from temporary closure by the action of the chain. The wound is frequently sponged with carbolic solution during the operation, and the pressure of the sponge will stop oozing, especially when the patient's limbs are brought down. Ice might be used, or very hot water, but pressure has always succeeded quickly with me. After a careful examination of the wound, and swabbing it out with the forty grain solution of chloride of zinc, the patient is put to bed with the buttocks raised on a covered pillow. No dressings of any kind are used, and no sutures. Drainage and cleanliness, with rest to the function of the bowel for forty-eight hours will do the rest. Opium in small doses I always use for obtaining rest to the wound and sleep, and a light but nourishing diet is given. The prolongation of the incision backwards provides an admirable drain, and no tube is needed. Careful and frequent washings with Condy's fluid and the dusting of iodoform have seemed to me the most useful after-management. The finger will always inform us whether the lower end of the bowel is open and the drainage clear, but the less the wound is irritated the better. If bleeding, which could not be commanded by ligature and temporary pressure, were to take place, I would put a large tube such as is occasionally used after lithotomy into the bowel, so as to secure the free escape of flatus, and then pack carbolised sponges or gauze or marine lint round it, but it is barbarous to close up the passage hermetically as has been done. The catheter will be required at short intervals, but days may pass before the action of the bowels be sought for. After a week any mild laxative may be used. The wound heals up with remarkable quickness. Whenever undue tightness occurs in the passage the finger or a tallow candle gently passed, under chloroform, will restore its freedom. This should be done at intervals. A backward division of the cicatricial tissue might be employed if, after a sufficient interval to test the condition of the aperture, such a step was found necessary. It is only when the whole circumference of the bowel has been removed that the contraction is severe. It is very curious to observe how the lower end of the bowel seems to approximate to the skin as the healing goes on, and how little deficiency there is in the parts and in the function of the sphincter. The incontinence gives place to retention if the contraction is great, but the remarkable way in which the patient recovers the power of retaining and evacuating his fæces at will is particularly interesting. There has been much discussion as to how this takes place when both sphincters have been removed. It seems probably due to the cicatricial tissue giving support to the lower fibres of the bowel attaining greater power of expulsion.

The relief after excision is very great, and if the operation be performed early and be complete, and the disease prove to be epithelial, the hope of long or even permanent good is considerable; anyhow, if two years be the average time of survival in cases not interfered with, I think well selected cases carefully operated on should considerably prolong life. That pain is relieved, comfort in every way promoted, hope revived, and very little danger incurred by the operation itself I think must be conceded.

I have said nothing of colotomy in any of its forms in connection with cancer of the rectum. Its relation to the disease is now fairly well defined, and does not affect the question of excision in the conditions I have been considering as fitted for operation. To obviate obstruction; to relieve cancer in the higher portion of the rectum; and even when in the lower part, if the mass of disease is opened up by ulceration and cannot be all removed, colotomy is invaluable; but these are not the cases in which I have advocated excision. So, too, it is no part of my intention to speak of the backward division of the bowel to relieve malignant stricture, or the scraping or tearing away of fungous masses, as these are not cases in which excision can be of service. I have already far exceeded the length I proposed for this paper, and will conclude with a short record of the seven cases in which I have operated.

The first case was that of M'G., a gardener, aged 54, who was admitted into the Western Infirmary in July, 1882, sent by Dr. Cameron, of Old Kilpatrick. There was no history of any hereditary or acquired disease. He had suffered from costiveness for about five years, which he ascribed to some liver affection he said he had complained of for a time. This had been his sole ailment till a year before admission, when he began to have attacks of diarrhœa. These attacks alternated with periods of constipation. Blood next appeared in his stools; at first in small quantity and then in occasional gushes. Slimy discharge, which soiled his clothes, soon followed; defæcation became painful, and the uneasiness, which was chiefly seated at the anus, but also flashed round his buttocks and down his thighs, continued for some time after stool. The loss of blood increased, as did the amount of slimy discharge till it became severe and constant, continuing even between the acts of defæcation. He had also frequent micturition and considerable irritation of the bladder. On admission he was worn and emaciated. His colour was distinctly sallow, and his face was habitually anxious. His strength had greatly diminished so that he could hardly walk. He slept and ate fairly. The left inguinal glands were slightly enlarged, but nothing could be made of the lumbar glands. The anus was found swelled and irritable, and both blood and slime constantly exuded. The aperture was unusually patulous. The introduction of the finger gave him much pain. Half an inch from the margin hard round masses were felt projecting into the bowel, but, except at one spot, the mucous membrane was smooth and unbroken. A deep, hard-edged ulcer, from which the bleeding took place, passed deeply into one of the nodules. When he was put under chloroform and this ulcerated point exposed, arterial blood escaped as from a considerable vessel. He had no piles. Starch and opium by enema arrested the diarrhœa and relieved the pain. He was put on a nutritious and soluble diet, and the parts kept clean. A few days after his admission I removed 3½ inches of the bowel, getting well beyond the affection, which was chiefly seated on the posterior surface. Nothing particular need be said of the steps of the operation, which was conducted as before described. In this case only did I use sutures to bring the mucous membrane to the skin, and they proved useless, as next day they had cut their way out. The after-treatment was as before related. He made a very good recovery without any complication or trouble. Only three times, and that for short intervals, did his temperature exceed 100°. In a month he had considerable control over his motions, and as the wound was healed he was dismissed. He had then much recovered his strength, and had actually become fat. He had very little complaint of his anus being too tight.

In September he came to show himself. He was fat and well, and had resumed his work. He had complete control over his bowels, and only when they were loose had he any oozing from the anus. He usually had an evacuation once, and sometimes twice, a day, and he was quite satisfied with his condition, and said he was " quite well." The anus was narrow, sunk in a pit, almost healed, but not so contracted as to necessitate interference.

In December he again came to the hospital, and his condition was quite satisfactory. Only when excited or hurried had he any involuntary discharge from his bowel. His bladder had entirely recovered its healthy condition, and he had no pain.

In March, 1883, he again appeared complaining of more frequent calls to stool, some pain in the act and slight discharge; but the control over his bowels remained good, and his general health was unaffected. At midsummer he came complaining of a return of the pain, some increase in the discharge, and a recurrence of his general weakness. He was losing flesh. I found that the disease had returned in front of the bowel, and that the tissues round the anus were covered with sprouting granulations. He declined to come into hospital, and died in the autumn worn out with weakness. That his life was prolonged and his suffering diminished by the operation I have no manner of doubt.

2. Mrs. H., aged 39, sent by Dr. Miller, of New Mains, to the Western Infirmary, in Oct., 1882. A healthy, strong, active, but slightly anæmic woman, with a good family history. She has had 5 children—the youngest being 18 months old. She has suffered from piles since her first child was born, at which time also she had inflammation of the womb. About 18 months ago, when her last child was born, blood appeared pretty constantly in her stools, but she ascribed it to piles. For some time her bowels have been very irregular, being at times costive and at other times too loose, and the amount of blood has often, especially of late, been very considerable, and is always scarlet in colour. A body of some size has occasionally been felt at the anus after straining at stool, and the blood appeared to come from it. Weariness in the loins, sacrum, hips, and legs has caused her no little distress and has produced a great lassitude and feeling of weakness. There is very little discharge except blood. Menstruation has been irregular for some months. On digital examination under chloroform a large fungating mass about the size of an orange, having a broad, deep set, hard base, and a rough broken surface which bleeds profusely on being touched, is found on the posterior surface of the bowel and about 2½ inches from the anus. No other growth existed, and no glands were enlarged. The growth was without much difficulty drawn down after the anus had been divided in the middle line so that an écraseur could be applied, a groove having first been made with a knife in the tissues beyond the area involved and a long needle passed so as to prevent the chain from slipping. There was no bleeding, and no trouble followed the operation as the wound healed kindly. She went home in the beginning of December with complete control over her bowel but some difficulty in evacuation from the contraction following the cicatrisation. This patient has been frequently seen since and remains in perfect health. There is some contraction and narrowing where the cicatrix exists and so enemeta have to be employed, but there is no ulceration or new deposit in the bowel. The tumour was "soft and gelatinous," and proved to be a typical cylindrical epithelioma.

3. J. D., aged 57, a commercial traveller, and patient of Dr. Neil Carmichael, of Glasgow, with whom I saw him in September, 1882. There was no hereditary disease in his family and his personal record was good. He had not suffered from syphilis, and had enjoyed perfect health up to December, 1881, with the exception of having rather a weak digestion. At the date mentioned he first noticed blood in his motions, but there was no violent bleeding, very little constipation, and no pain or slime. This he treated as piles. The blood, however, increased in quantity, and in August, 1882, it became so profuse as to cause him to consult Dr. Carmichael, who at once recognised the serious nature of the malady. About 1½ inch from the anus the disease began and involved the bowel all round, but especially behind, in an ulcerating mass, from which blood and offensive slime escaped freely. Defæcation was very painful, and the patient was considerably blanched and somewhat emaciated. There were no piles and no change apparent external to the anus, no glands were at that time enlarged, nor was there any other disease but the rectal one.

He was taken to "the Home for Training Nurses," and on 4th September I removed the whole of the disease (which the finger could just get beyond) in the way before described. The tissue was very soft and broke down easily, so that the removal of the bowel was very difficult. He stood the operation well and had no after sickness or shock. He slept well and took nourishment freely during his subsequent residence in the Home. He made a fair recovery. The temperature varied from normal to 101·2°, its highest range, which it only attained on one occasion. He went to his house on 3rd Oct., the wound being healthy and clean but not entirely closed. He passed well formed stools, with hardly any pain, once a day, and regained almost entirely the power of retention. By 17th Oct. he had gained flesh, had recovered his colour in some measure, and was cheerful and well. The wound was about the size of a florin and quite healthy. There was no blood or slime or smell. A small quantity of pus, I was told, had escaped from a tiny hole in the granulations, but none came when I pressed it. About six weeks after last visit I saw him again and found affairs in a very unsatisfactory condition. A sprouting mass, like exuberant granulations, was appearing where the little abscess had burst and was rapidly increasing. A hard neck or base extended upwards. Its nature could not be mistaken. He complained of no pain and there was no fœtor or blood, but his bowels were loose and a little irritable. A catheter had been required for a few days, but not before. He was losing flesh and courage. He died on 20th December, the disease having made rapid progress. The tumour was quite typical columnar epithelioma. The only good got from the operation here was some respite from a miserable death.

4. S., a saddler, aged 70, was sent to me by Dr. Messer, of Helensburgh, in March, 1884, on account of prominent, hard, irritable masses which surrounded his anus, and from which he had suffered severely for several months. He was a very strongly made, thick set, healthy, and very temperate man, of good family and personal history, who had suffered for forty years from internal piles, which occasionally bled freely. He was of costive habit, and latterly this disposition had increased, but occasionally it had given place to annoying attacks of diarrhœa. The hard masses which now surrounded his anus had only appeared within the previous six weeks. These were deeply ulcerated, bled very profusely at each stool, caused him extreme pain at all times, but especially after defæcation, and gave out constantly an abundant and very fœtid discharge. When his motions were formed they were quite "pipe-stemmed." His bladder was unaffected. He had lost flesh rapidly lately and his appetite was bad, and his sleep disturbed. On examination with the finger the area of the disease was found to be limited upwards, but to encircle the bowel. The finger easily went beyond all the affected tissue. The lumen of the bowel was much diminished. The glands were not involved. On 31st March I removed the lower portion of the bowel and the whole disease, which was epithelioma with much inflammatory exudation. Bleeding was pretty free, but easily checked. The wound was almost closed in the middle of July when he went home. There had been no trouble or complication of any kind. The relief was very great, and the patient loud in his expressions of gratitude. The bleeding and other discharge ceased, his appetite and sleep returned, and he recovered flesh, while all pain was removed and his anxiety and mental distress were relieved. He obtained complete command over his evacuations, and, except that costiveness gave him some trouble, he was "in as good health as he had enjoyed for 30 years." The passage was sufficiently free and quite sound at that time. I saw him frequently afterwards, and his condition remained in all respects favourable till December, when his general health again began to falter, and the difficulty of getting his bowels to act increased, yet locally everything remained sound. In February, 1885, he had certainly lost flesh, and he had some pain on defæcation, and I detected a few small elevations beyond the cicatrix.

He died in April, and Dr. Messer, in informing me of the event, said "he had a peaceful end. To the last he was most grateful for what had been done for him, and quite brightened up when your name was mentioned. He simply got weaker, lost appetite, and slipped away with little or no suffering. The opening remained free to the end, and he never had any more bleeding. There is no doubt whatever but that the operation greatly prolonged his life and relieved his sufferings, and he was most grateful for the respite it gave him."

5. Mrs. H., aged 45, also a patient of Dr. Messer's, came into "the Home" in March, 1885, with well marked epithelioma of the rectum. She was a pale thin woman, who had no family, but had no hereditary cancerous taint. Constipation alternating with diarrhœa first attracted her attention seven months ago. Three months after blood first appeared and some pain. Slime soon followed, which escaped involuntarily, and is now pretty profuse. There is not much pain, but during defæcation it is occasionally sharp. It is confined to the anus. She has fair digestion. Nothing seen externally. Within the anus there is at least half-an-inch of sound mucous membrane, and then round, hard, smooth tubercles are met with on the posterior and right lateral aspect. The finger reaches well beyond the disease. There is no ulceration felt and no blood, and very little pain followed the examination. The glands were sound. In March I removed the whole cyclinder of the bowel to fully half-an-inch beyond the highest limit of the affection. The bleeding was trifling. The wound healed up without any trouble, and so quickly that she went home on 18th April in much improved health, her weight increased, and her hope revived. The command over her bowel was very good, but not quite complete. She has remained well, only suffers more from constipation than is comfortable. The cicatrix is pretty tight, but by the use of slight purgatives she regulates herself. Her appetite is good, and her strength and flesh much increased.

In October this patient says she is "perfectly well, that she was stronger, fatter, and better than she has been for years." She had no pain, had complete control over her bowels, and was regularly relieved once a day without medicine. The wound is soundly healed, and the aperture sufficiently open.

6. A. S., aged 37, bleacher, patient of Dr. Miller of Dundee, admitted into Western Infirmary, January, 1885, with malignant disease of the rectum. His family history was good, without any known taint of cancer and no personal history of syphilis. He was not a strong man and was pale and thin

when he came under observation. He had suffered from inflammation of the lungs and had clubbed fingers. His lungs were not diseased but he had some slight evidence of bronchitis. In August, 1884, he first suffered from diarrhœa with tenesmus. His motions were soon tinged with blood and he passed a good deal of mucus. He had to go to stool fifteen or twenty times a day at that time. He had no pain. This attack and others of a similar character were followed by constipation. He continued at work till a fortnight before admission, when blood and slime became more abundant and he lost in some measure command over his bowel. He sought advice, and the nature of his ailment being recognised he came into the infirmary. No enlarged glands were detected. There was a constant exudation of bloody slime from the anus where two small piles existed. About two inches from the anus the bowel was much contracted. Below that point the bowel was apparently sound, but from the contraction upwards, almost as far as the finger could reach, there were hard round nodules which encircled two-thirds of the bowel and were rough and ulcerated at some places so that they bled when touched. The chief mass of the disease was on the posterior surface, and the finger reaches to sound tissue. On 28th January the whole disease was excised without difficulty. Nothing occurred during the healing of the wound to require mention. The affection was found to be the usual columnar epithelioma. I examined the bowel on 25th February and found it sound. The finger passed easily, and he had then a fair control over the evacuations. In another month he was walking about and had recovered in a large measure his strength and flesh. He went home on 7th April, his bowel being in a healthy condition, the passage fairly free and his strength good. He had then good control and took his food well. The wound was healed all but a very trifling point to the left side. In September, 1885, he came again during my absence abroad, and it is stated that at the seat of the unhealed portion of the wound a hard lump formed which had increased so that when examined it was as large as a florin, with overhanging and everted edges. There was considerable constriction of the orifice, and within the bowel some hard nodules were felt. He had almost perfect control over his motions. His general health remained good, but lately he had lost flesh. The glands in both groins *below* Poupart's ligament were enlarged. It is evident that the disease had here returned.

7. L. I., aged 57, blacksmith, a patient of Dr. Stirton's, was admitted into the Western Infirmary on 29th January, 1885. I

had seen him some time before at his house and asked him to come into the hospital, as I thought it a fair case for operation. He delayed coming, so that the disease had made some progress in the interval. This man was older in look than his real age and had suffered much pain. There was no history of cancer or syphilis. He had been a healthy man till his present ailment began. Six years ago he suffered from loss of blood at stool and treated it as arising from piles. Six months ago he became costive and strained much at stool, which induced profuse bleeding, and to this he ascribed his present weakness and loss of flesh. An inch and a half from the orifice there were nodulated masses on the left and posterior surface of the bowel, the rest of its circumference was seemingly sound, and the finger reached to unchanged mucous membrane beyond. The diseased bowel was removed on 10th February, and found to be cylinder-celled epithelioma. One nodule escaped the chain of the ecraseur, but was scraped and snipped away afterwards. By 23rd March the wound was almost healed, and the largest sized œsophageal bougie passed easily. The interior of the bowel was then smooth and seemingly sound. He went home in August. On the 28th he was brought back with his throat so terribly cut that he died next day. He had committed suicide from some cause not known, but partly, it was said, from his fear of future suffering. The bowel was examined. The anus admitted two fingers. A small abscess in the wall of the bowel had evacuated itself. A patch of malignant disease about the size of a florin was found where the nodule had been detected after the operation. This was all the evidence of the affection found. No glands were diseased.

Such then is an account of the cases in which, up to the time when this paper was read, I had performed excision of the rectum for malignant disease. It is apparent that something practical as regards the cases fitted for the operation can readily be deduced from their relation as well as many suggestions as to how best to perform the operation. There is no doubt but that the cases in which the surgeon can interfere with good hope of success form but a small percentage of those he meets with in practice; but if greater care was taken to discriminate the disease at its outset, and an operation was performed early, I am satified that the sufferings of many patients would be relieved and not a few lives prolonged or even saved.

ON RECENT METHODS OF TREATMENT OF THE ASPHYXIA OF NEW-BORN CHILDREN, WITH A DESCRIPTION AND ILLUSTRATION OF THAT OF PROFESSOR B. S. SCHULTZE, OF JENA.

By WM. L. REID, M.D.

(*Being an Address at the Inaugural Meeting of the Glasgow Obstetrical and Gynæcological Society*, 14*th October*, 1885, *by the President of the Society.*)

I suppose there are few here to whom it will not be interesting to consider for the short time at our disposal the subject of apparent death in the newly-born child, and the best modes of treatment of this highly dangerous condition. It has been considered by some rather a low estimate that 3 per cent of human beings perish in the act of being born, the great majority of these dying from asphyxia; and there are very many others who owe their lives solely to careful and persistent efforts to restore them at their birth. These considerations lend importance as well as interest to our subject.

There have been discussions as to what constitutes life and what death in a newly-born child, and I am led to believe that the law has it that a child is born dead if it never breathes, even although its heart should beat freely for some time after birth. With us there is fortunately no dubiety. Many children are choked to death before they are born, many are born choked, only to such an extent that they do not breathe spontaneously, but the heart still acting they may be stimulated into free and natural respiration by artificial means. Those latter we call the apparently dead-born, and it is their case which concerns us now.

Formerly, three varieties of apparent death were mentioned in books, viz., from apoplexy, anæmia, and asphyxia. But the observations of Hegelmayer, Poppel, and Frankenhäuser have shown that these all may be classed under the heading of asphyxia, or, as Dr. George Harley more accurately calls it, apnœa. Thus, pressure on the head and damage to the brain give rise to lowered action of the heart, this to slower circulation through the placenta, and so to asphyxia. And it has been clearly proved that the purple, livid, and pale conditions of the skin are but various stages of the same process, and are to be dealt with as such. As Cazeaux puts it, all cases of apparent death are to be traced ultimately to lowered placental respiration.

In order better to understand how apparent death is produced, let us consider the sequence of events in a normal case.

The fœtal blood is freshened by contact with the oxygen of the maternal blood in the placenta. When the uterus contracts after the birth of the child's body, the placenta is squeezed together, if not actually separated, and the uterine sinuses are practically done away with by contraction of the muscular fibres around them. Thus, the blood of the child rapidly becomes poor in oxygen. But the circulation of venous blood acts as a powerful stimulant to the breathing centres in the medulla oblongata, and inspiratory movements resulting, air is drawn into the lungs and the lesser circulation opened up, and thus the change from placental to aerial breathing safely takes place. Irritation of the skin is also a powerful stimulant to inspiratory movements, and in ordinary labours what probably most commonly takes place is, that the cool air causes breathing to occur before lack of oxygen has had time to become the chief factor in its production.

On the other hand, let us consider what takes place in abnormal circumstances. The placental circulation becomes lowered by premature separation of that organ, by weakness or hæmorrhage on the part of the mother, by continued contraction of the uterus from the abuse of ergot, by pressure on the cord from prolapse, or twisting of it round the neck of the child, or a presentation of the breech, by apoplectic coma, or from premature attempts at breathing, due to irritation of the skin in utero—the latter, a cause which is not well known, but of which we have considerable proof. The lowering of the placental circulation, produced in any of these ways, leads to the general circulation of venous blood, which stimulates the vagus, and causes slowing of the heart's action, proved by the well known fact that during a severe and long continued pain the heart acts more slowly, and again recovers itself as soon as the pain passes off, and the consequent pressure on the placenta is removed. The venosity of the blood thus increased acts powerfully on the breathing centre in the medulla oblongata, and attempts at inspiration take place. Then either of two results follows. If the air openings are free, amnionic fluid, mucus, or blood rushes in and fills the air passages, and this is proved by its expulsion after birth, and by loud bronchial râles if the asphyxia be not so deep as to prevent the child's survival. If the air openings are compressed, then blood overfills the vessels of the lung, as is proved by the congestion and extravasation found on *post-mortem* examinations. Both of these results disturb the balance of the fœtal circulation and impede the passage of blood through the placenta, and if the birth is at all delayed, actual death, or very deep apparent death, is sure to result. It is curious and interesting to know that where fluid is sucked into the air passages experience proves that the chance of resuscitation is much greater, the balance of the circulation being much less disturbed than when the vacuum has been filled by the overcharging of the fœtal blood-vessels.

But there is yet another possible condition of the child in utero, and one which is the most favourable of all for its recovery, and that is when the asphyxia takes place so slowly that the medulla becomes numbed before the vagus can, through the lowered action of the heart, set up attempts at breathing, and in such cases the medulla refuses to answer to the usual stimulation. Under these circumstances complete apnœa persists, and the child may continue in this condition for a considerable time after its birth. The heart acting very poorly, and little or no tissue change taking place, and yet complete recovery may be possible. This form is so curious that I may be pardoned for referring to one or two such cases. Maschka (*Das Leben der Neugeborenen ohne Athmen; Prager Vierteljahrsschrift*, xxxiii, 1854, seite 1) relates two cases. One, an illegitimate child, was buried in a garden; was dug up five hours afterwards, its heart was found beating, and, restored by artificial means, it lived for three days. Another, thought to be dead, was put in a coffin, and lay for twenty hours in a cold room. Maschka incidentally saw it then, noticed the movement of its heart, and watched it by means of the stethoscope, until, in spite of his efforts, it ceased beating about an hour afterwards. A *post-mortem* examination proved that no air had ever entered the lungs. Bardinet (*Bulletin de l'Académie Impériale.* Tome xxx, p. 1052, No. 21, 1865) gives details of a case where a child, born apparently dead, was wrapped up in a cloth, and buried in an adjoining field at ten o'clock in the morning. At six in the evening it was dug up from under ten inches of earth, found alive, and lived for four days after its disinterment. There have been other cases recorded in this country, which leave no doubt as to the occasional existence of such a state, and the possibility of recovery from it.

Having thus spoken of the causes and varieties of apparent death, let us now consider the different methods of restoration which have been suggested. It would be interesting to examine all the various plans which have been published; from Smellie's simple one of whipping the child well, and rubbing its mouth and nose with onions, to that of Woillez, who puts it up to the neck in the receiver of an air-pump, and alternately rarefies and condenses the contained air. But we must content ourselves with adverting to those which have been of late years held in most repute, excluding those which necessitate the employment of complicated apparatus as being practically out of the question.

Besides that of Dr. B. S. Schultze, Professor of Midwifery in Jena, which I mean more particularly to describe to-night, there are eight methods before the obstetric public, but at present I can only indicate the principles of these. For the benefit, however, of those who wish to inquire into them more closely, I give references to the original descriptions, quoting from a paper by Dr. Champneys, to which I shall have occasion immediately to refer.

1. Marshall Hall (*Lancet*, 1st March, 1856). The patient is turned face downwards so as to press on the chest and cause expiration, then turned on the side so as to free the chest from pressure, and produce inspiration by means of the elasticity of its walls.

2. Howard (*Lancet*, 11th Aug., 1877, p. 199). The arms are extended, the wrists being brought together over the head and the chest thus expanded. The lower ribs are then alternately pressed on and relieved from pressure, so as to cause expiration and inspiration.

3. Silvester (*The True Physiological Method of Restoring Persons Apparently Drowned or Dead, and of Resuscitating Still-born Children.* H. R. Sylvester, M.D. London: 1858). The arms are raised upwards and forwards for a few seconds, and then pressed firmly down against the sides of the chest. By means of their muscular attachments the ribs are raised and air sucked in, which is expelled when the arms are brought down again.

4. Pacini (*Di un Nuovo Metodo di Praticare la Respirazione Artificiale.* Firenze: 1867). The feet of the patient are fixed, and the operator standing with the head against his own abdomen, seizes the arms at the axillæ and pulls the shoulders upwards and forwards, then allowing them to return to their former position.

5. Bain (*Med. Times and Gazette*), 19th December, 1868. P. 708). The shoulders are raised by lifting the body a foot off the table by seizing its hands. They are then allowed to fall back again, thus causing alternate expansion and contraction of the thoracic cavity.

6. Schücking (*Berl. Klin. Wochenschr.*, 1877, No. 2, p. 19). Like Silvester's, except that he carries the arms outwards as well as upwards.

7. Schüller (*Berl. Klin. Woch.*, 2nd June, 1879. P. 309). The operator puts his fingers under the edges of the ribs, and pulls them up, afterwards depressing them.

8. Schrœder (*Lehrbuch der Geburtshülfe.* Bonn: 1874. P. 673). The body is supported by one hand placed under its back, allowing the head, shoulders, arms, and pelvis to fall backwards with the view of producing inspiration, expiration being caused by sharply bending the body forwards so as to compress the chest and abdomen.

Lastly, let me attempt to give you a clear idea of Schultze's method, of which Champneys says that it is "hard to describe, somewhat complicated, and almost never practised in England," although a "most ingenious method." The child is to be suspended a few inches from the floor, by the two index fingers placed in the axillæ from behind, the thumbs lying loosely over the front of the thorax, and the other fingers spread also loosely over the thorax behind, the head being supported against the edges of the ulnar bones. (Fig. 1.) Without delay in this position, the child is swung sharply upwards, until the operator's arms are extended horizontally, then the upward movement is continued more gently so as to bring the legs slowly past the perpendicular and allow them to sink quietly against the front of the child's body. (Fig. 2.) The weight of the latter is now supported by the thumbs in front of the thorax, and the chest pressed on all round by the fingers, and its arms laid against its sides. This compression through the diaphragm below, and the fingers all round, causes aspirated fluids to flow freely from the mouth and nose. After being retained in this position a few seconds, the body is swung smartly down again into its former position, taking care that now there is no compression of the chest, either before or behind, but simply a suspension of the child on the index fingers. (Fig. 1.) During this movement the contents of the abdomen, partly by gravity, and partly by centrifugal force, fly away from the diaphragm, and dragging it down, enlarge the chest from below. At the same time the arms are separated from the sides, and by their muscular attachments drag the ribs upwards, and in this way air is sharply drawn into the lungs. These movements are continued every four or five seconds, unless when a considerable quantity of fluid continues to come from the mouth and nose, when the movement of expiration is on that account prolonged.

You will now be ready to say that quite a number of the methods described look well on paper, but ask which of them best stand the test of experience. Well, this is a question not easily answered. When a new plan is published, the medical papers are soon flooded with cases in which it has been tried, and in proof of its efficacy or otherwise. Such evidence is not worth the paper on which it is printed, because all kinds of cases are muddled together, from those in which Smellie's onion would have sufficed, to those in which the most scientific means would have utterly failed. But much has been done to help to a true solution of the question. The Royal Medical and Chirurgical Society appointed a committee to look into this amongst other matters, and after careful investigation and

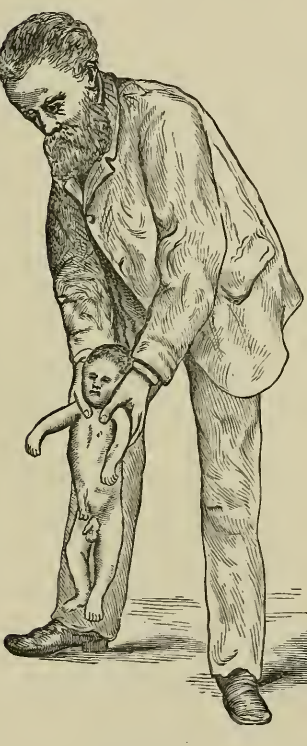

FIG. 1.

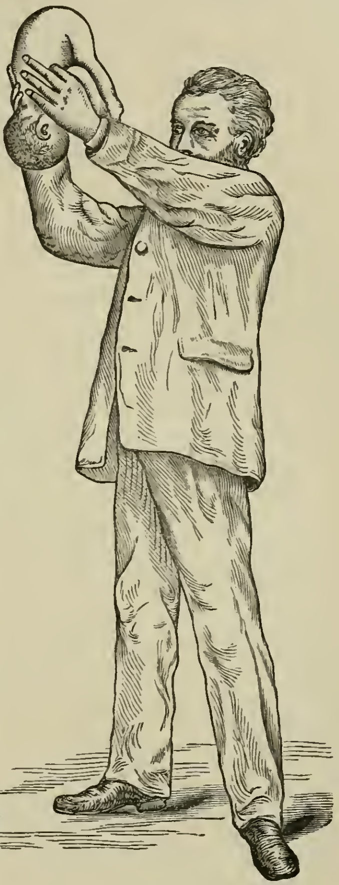

FIG. 2.

experiment it published a report in the forty-fifth volume of its *Transactions,* 1862. Of the methods then tried, Silvester's was found the most efficient. A few years ago Dr. F. H. Champneys, Assistant Obstetric Physician to St. George's Hospital, London, undertook a series of experiments on the fresh bodies of newly-born children, with the view of finding out simply which method took most air into the chest, and published what is, so far as it goes, a most valuable contribution to the subject. This will be found in the sixty-fourth volume of the *Medico-Chir. Trans.,* 1881. The methods tested were the nine I have already mentioned and shortly described. The conclusions, amongst others to which Dr. Champneys came, are these:—

"Since the position of equilibrium of a still-born child's chest is one of absolute expiration, airlessness, or collapse, no method which depends on elastic recoil of the chest walls will introduce air into its lungs. The methods of Marshall Hall and Howard are useless as means of directly ventilating the lungs of still-born children."

"Silvester's method and its modifications by Pacini and Bain introduce more air into the lungs than any other method."

"Schücking's method is no improvement on Silvester's."

"Schüller's method is useless, and not free from risk."

"Schrœder's method is useless."

"Schultze's plan, although its power of ventilation is less than that of Silvester and its modifications, yet acts efficiently."

"The violence of the action of the method of Schultze is not in its favour."

Carl Behn (*Die Verschiedenen Methoden der Künstlichen Athmung bei Asphyktischen Neugeborenen. Zeitschrift für Geburtshilfe and Gynäkologie.* V. Stuttgart: 1880,) states that the desiderata of artificial respiration are three in number—(*a.*) ventilation of the lungs, (*b.*) excitation of the circulation, (*c.*) removal of foreign bodies from the air passages. It must be remembered that Champneys' experiments did not in the slightest concern themselves with the two latter considerations. They are, however, highly important, and will be touched upon afterwards.

Before concluding this paper with a description of how Schultze goes about the application of his method in actual practice, let me briefly notice one or two objections which have been taken to it. Barnes, in his recently published *Obstetric Medicine and Surgery,* in speaking on this subject says, "We need only mention Schultze's method of swinging and tossing the child. It has not been shown to possess any advantage to compensate for the violence which characterises it." On the same page he adds, "We have tried all these methods excepting Schultze's." It will be long before any method can be shown to possess much advantage if people condemn it before having given it a trial. Evidently Barnes is founding on the objection which Champneys' experiments led him to make, and which we shall now consider. The statement of the latter is, that "the violence of the action of the method of Schultze is not in its favour." If it were true that a fair amount of air could be taken into the chest only by such violent movements as resulted in grave damage, then the objection would be a reasonable one. But the objection is that the expansion of the chest walls was greater than the lungs were capable of following, and that if an important bronchus were occluded by a plug of mucus, a rapid and powerful blast of in-going air would cause over-distension of the rest of the lung-tissue, and permanent mischief. It seems to me that this, if a real objection, would hold true of all other methods sufficiently powerful to do much good, and that the difficulty could be met by swinging oftener and more gently. But the best answer is Schultze's own statemant (*Der Scheintod Neugeborener*, Jena: 1871), that he has seen children for the first time several days after birth, detected the presence of small atelectasies by percussion, and in the same manner proved that they were removed by the practice of his method.

Hofmann (*Lehrbuch der gerichtl. Medizin*, iii, Aufl: 1884), swung energetically thirty times the bodies of four dead-born children, and finding no air in the lungs condemned the method as useless. Now, the swinging process may be *energetic* without being at all *thorough*, and Schultze pointed out in his original monograph, that the method, when not preceded by the use of the catheter passed into the trachea, was not so well suited for premature children. The softness of the chest walls and tracheal rings—allowing of their collapse when the descent of the diaphragm lowers the air pressure in the chest—effectually prevents the access of the external air. Hofmann's bodies were not only those of premature children but also had been removed from mothers already dead, so that even according to Schultze's own showing, the experiment ought not to have been expected to succeed.

Lastly, and oddly, it has been urged as an objection that if the method were successful and well known, it could be employed to defeat the ends of justice, by spoiling, for the forensic physician, the air-holding test, that is to say, the presence of air in a dead child's lung could be explained on the grounds that its resuscitation had been attempted by Schultze's method. Schultze rightly answers that that is the forensic physician's look-out, and that the knowledge that such is possible, ought to be a help rather than a hindrance to him.

Given, then, the birth of an apparently dead-born child, how ought we to proceed with its treatment? Personally, I believe in hanging it up by the heels with one hand, and clearing out its mouth and throat with the forefinger of the other. If this, followed by sharp whipping of the buttocks with the loosely hanging fingers, does not excite inspiration, I proceed at once with Schultze's method. The following is his own plan. If the heart is beating strongly, and the child only in the livid state of asphyxia, the cord is not cut, but the mouth cleared out, and cold water squirted on the pit of the stomach and nape of the neck. If the heart's action is weak to begin with, or becomes weak, the cord is divided, allowing three or four teaspoonfuls of blood to escape, and the child dipped suddenly up to the neck in cold water. This failing, or when the child is born in the pale stage of asphyxia, after dividing the cord, clearing the throat, and pulling forward the tongue, swinging is at once had recourse to. The expiration position being gained, fluid pours out of the air passages by the mouth and nose, and as soon as it ceases, the inspiration position is assumed, when oftentimes the air is heard whistling through the glottis. These movements are to be executed eight to ten times, occupying, in all, about a minute. Aside from the ventilation of the lungs, and the removal of fluids from the air passages, the alternate raising and lowering of the pressure in the thorax acts mechanically in promoting the action of the heart, and the circulation of the blood. In this way oxygen is sooner carried to the medulla, restoring its power of setting up breathing, and this may be proved by noticing that the skin becomes redder even before spontaneous breathing has occurred. Often a little whimpering sound tells that weak efforts at inspiration are being made, and the swinging must then be timed, so that the artificial shall coincide with the natural attempts at breathing. After eight or ten swings the child is put into a warm bath (95°-100° F.) to do away with the evil effect of rapid cooling, and to observe the result of the treatment. If there is no movement, it is swung again for another minute. If there is slight regular movement, the medulla is roused by dipping to the neck in ice-cold water. If the asphyxia recur swinging is resumed, although this is always a bad sign, showing that there is an effusion of blood on the brain, or malformation of the respiratory or circulatory organs. The artificial means must not be stopped until the heart's action is completely restored, and the child cries loudly. In the case of a premature child with weak chest walls, or where after swinging a few times, no air is heard to enter, it is wise practice to pass a catheter into the trachea, blow in a little air to distend the air passages, and immediately resume the swinging.

In the employment of this method, the following points must be attended to, and I again call your attention to them, because, as Schultze himself says, and as six years' personal, and somewhat extensive experience of it has taught me, the success of it depends entirely on the thoroughness of its performance. (1.) The first movement must be that of expiration, else the contained fluids will be sucked still deeper into the air passages. (2.) The downward movement must be a fairly sharp swing, else the effect on the diaphragm will be largely lost. (3.) If no air is heard entering, either the swing has not been powerful enough, or the thumb and fingers have not left the thorax free or the glottis is closed. In the latter case the catheter must be used immediately and the swinging resumed.

As already mentioned, the three indications to be met are:—Ventilation of the lung, acceleration of the circulation, and removal of inspired fluids. Ventilation of the lung alone, as by blowing in air, does little good, because, where the circulation is poor, oxygen is not carried to the nerve-centres. Acceleration of the circulation alone, as by a warm bath, is not very effectual, because where there is no entrance of air it can only do harm by increasing the central congestion. And so with the simple removal of fluids, as by aspiration through the catheter, for the mechanical irritation of its introduction may set up an attempt at inspiration, which sucks the remaining fluid deeper into the air passages. The advantage of the method we are now considering is that time is not lost in trying to meet these indications one after the other: they are all being attended to at once, and in such a way as to need no apparatus and not even the presence of a highly educated operator, for an ordinary midwife may be taught the practice, if not the theory of it, in a single lesson.

Some seven years ago I had the advantage of hearing this method explained by Professor Schultze in the Lying-in Hospital at Jena, and since that time have practised it with certainly better results than I formerly obtained by Silvester's plan. I do not know that it has been much, if at all, employed in Scotland, but I feel disposed strongly to recommend it, begging you not to throw it up without making sure of having followed it exactly. Champneys, in the paper already quoted, complains that "even the common methods are most inaccurately known. It is not, for instance, an edifying spectacle to see one surgeon leaning his whole weight on a patient's abdomen, at the same time as another surgeon elevates the arms in the belief that Silvester's method is being pursued." I trust that, of however little merit my paper may otherwise be possessed, it may enable you to carry away a fairly practical idea of this, to my mind, ingenious and valuable means of restoring to health the helpless victims of asphyxia.

DARWIN'S DOCTRINE OF EVOLUTION IN EXPLANATION OF THE COMING INTO BEING OF SOME DISEASES.

By WILLIAM AITKEN, M.D., F.R.S.,
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Section VI.—*On the Gradual Evolution of Constitutional Diseases.*

Looking first to the causation of constitutional disease in the individual (and excluding for the present parasitic and zymotic diseases), "Do we not find that, for the most part, *such diseases are of very gradual evolution*—the essential outcome of continued violation (consciously or unconsciously) of physiological laws, as they exist for the race, or as they are conditioned by the peculiarities of the individual—*that these violations are not exceptional and gross, but daily and minute; and that their specific effects, infinitesmal from day to day, become visible only after long periods of time,* and so escape recognition, except by those who are trained to discern the causal connection of subtile things?" *

Such is "an evolution unnoticed from its slowness." It is these minute and almost inappreciable conditions of daily life which practically make or unmake health. Hence it may be inferred that the long continued influence through many generations and ages of time, of hereditary influences and unsuitable but inevitable environments may establish new diseases of constitutional or autochthonous production; and if not absolutely new diseases, at any rate diseases of such very variable chronic types as are daily met with, and classed as general or constitutional ailments. The effects of physiological forces acting under unphysiological conditions constitute the essential and true disease. Hence it may be argued that the persistent transmission by heredity of "changes, although merely of the relation of parts, of re-arrangements of atomic groupings, of recurring cycles of vicious chemical substitutions and exchanges, of new conditions in the evolution and distribution of nerve force, any or all of which may be invisible to the eye, inseparable from the life and undiscernible in death," must in time eventuate in the evolution of definite and characteristic ailments. "The appearance, for example, of definite structural alteration in the course of disease would introduce 'a new order of events, would set in action new combinations of forces, and create disturbances which must be reckoned with, even as mechanical accidents of the pathological processes.' But, in the active and dynamic changes which give the structural forms birth, and stretching far beyond the limits of pathological anatomy, and pervaded by the actions and interactions of multitudinous forces, a region exists teeming with manifold forms of disease unconnected with structural change, and demanding the investigation which it would abundantly reward. It is in this mysterious and fertile region of dynamic pathogenesis that we come face to face with the primitive manifestations of disease, and learn how much knowledge from various sources is needed to understand it aright; it is here that we see how, without help from physics, chemistry, and biology, collecting, converging, and meeting in a converse light, no single problem in disease can be completely solved; it is here that we are made to comprehend how the nature of a pathological product cannot be determined by its structural characters alone, but by the life history of the processes of which it is only a partial expression; it is here that we observe how, in therapeutic experiments, the laws of the race are conditioned and even traversed by the law of the individual; and it is here that we discover how clinical medicine is to become a science, and how she is already beyond question at once the mother and the mistress of all the medical arts." *

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* Sir Andrew Clark, Bart., *Trans. Clin. Soc.*, xvi, p. 57.

With such infinite variability in the combining dynamic factors which lead to the gradual development of constitutional diseases, not only through lifelong inheritances to be counted by generations, but also through long continued cycles of time, and having regard to the inherent tendency in all

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* Sir Andrew Clark, *Clin. Soc. Trans.*, vol. xvi, 1883, p. 54.

organic existences to vary indefinitely from the original type, are we not warranted in concluding that such variations may be naturally perpetuated through such an evolution as new diseases under circumstances of environment favourable to such an evolution and to their continued existence?

If we study pathology as a branch of biology, the evolution of diseases will be more easily understood. When medicine is thus thought of as a pure science, and as something not necessarily connected with the curative treatment of diseases, it implies a "pathology" which has no more necessary subservience to practical ends than has zoology or botany; and the logical connection between this purely scientific doctrine of disease or pathology and ordinary biology has been thus traced by the master mind of Professor Huxley. "Living matter," he writes, is "characterised by its innate tendency to exhibit a definite series of the morphological and physiological phenomena which constitute organisation and life. Given a certain range of conditions, and these phenomena remain the same, within narrow limits for each kind of thing. They furnish the normal and typical character of the species; and, as such, they are the subject matter of ordinary biology."

"Outside the range of these conditions the normal course of the cycle of vital phenomena is disturbed, abnormal structure makes its appearance, or the proper character and mutual adjustment of the functions cease to be preserved. The extent and the importance of these deviations from the typical life may vary indefinitely. They may have no noticeable influence on the general wellbeing of the economy, or they may favour it. On the other hand, they may be of such a nature as to impede the activities of the organism, or even to involve its destruction.

In the first case, these perturbations are ranged under the wide and somewhat vague category of "variations;" in the second, they are called "lesions," "states of poisoning," or "diseases;" and as morbid states they lie within the province of pathology. No sharp line of demarcation can be drawn between the two classes of phenomena. No one can say where anatomical variations end and tumours begin; nor where modification of function, which may at first promote health, passes into disease. All that can be said is, that whatever change of structure or function is hurtful belongs to pathology. Hence it is obvious that pathology is a branch of biology, it is the morphology, the physiology, the distribution, the ætiology of abnormal life. Henceforward the connection of medicine with the biological sciences is clearly defined, and pure pathology is that branch of biology which defines the particular perturbations of cell-life, or of the co-ordinating machinery, or of both, on which the phenomena of disease depend."*

"From this point of view pathology is the analogue of the theory of perturbations in astronomy; and therapeutics resolves itself into the discovery of the means by which a system of forces, competent to eliminate any given perturbation, may be introduced into the economy. And as pathology bases itself upon normal physiology, so therapeutics rests upon pharmacology, which is, strictly speaking, a part of the great biological topic of the influence of conditions on the living organism, and has no scientific foundation apart from physiology."†

So far, therefore, as the doctrine of evolution in biology has assumed a position and acquired an importance ever since 1859, which it had not possessed before, it is, I believe, specially capable of illustrating the pathology of constitutional diseases from the biological point of view here indicated.

From this point of view the constitutional diseases may be regarded as "sports" or "variations" from the normal line of health. Evolution may thus not only explain their origin, but may account for the persistence of some forms of diseases, unchanged through long epochs of time, while others undergo comparatively rapid metamorphoses. The causes and conditions of variations in constitutional diseases (as in biology) have yet to be thoroughly explored; and further inquiry may prove "that variability is definite, and is determined in certain directions rather than in others by conditions inherent in that which varies." . . . "It is quite conceivable that every species of constitutional disease tends to produce varieties of a limited number and kind," and that the effect of "elective affinity" in the constitution of the race, or of the individual towards certain causal and concurrent factors of disease, rather than to others, would be "to favour the development of some of these while it opposes the development of others along their predetermined lines of development."‡

There is a manifest tendency to the transmission by inheritance of these diseases. While they appear to be developed under the influence of agents generated within the body itself, through the customary exercise of its functions in the daily course of nutrition, development, and growth; the original organisation of the body may be of such a kind that the continuous exercise of its functions, in place of preserving the system in a state of health, ultimately leads to the evolution of diseases of various kinds, which, from this mode of origin and development, have received the name of constitutional diseases.* All of them are eventually attended with more or less obvious and severe manifestations of structural disease; some of so fixed a character and so strongly expressed that the local lesions are sometimes (although erroneously) looked upon as constituting distinct diseases; such, for example, as the joint or heart affection in rheumatism, or the bone affection in rickets. These local manifestations of constitutional diseases are invariably the result of the pre-existing unhealthy state of the system, determined mainly by heredity, and by the environment of the individual. It is now very generally understood that there are—(1.) Latent conditions existing in the constitution of the body itself. (2.) A tendency to the development of special and peculiar expressions of disease (sports?) during the course of the physiological nutrition and morphological changes between the solids and the fluids of the body; and which are constantly influenced by the operation of agents from without (the environment of the individual) acting as excitants to the morbid developments. The constitutional diseases are, therefore, all associated with "a bad habit of body"—a cachexia, as it is technically named. The lesions (or special "sports") which attend them are rarely limited to one part or organ, and before death ensues, several organs, tissues, or apparatus, not necessarily contiguous to each other, become further diseased, and new materials of a heterologous nature may grow up in their substance. In these local lesions are to be found those elements which mark the "anatomical character," or "anatomical signs" of the several constitutional diseases when fully expressed; but we do not yet know why one organ or texture should be either earlier or more constantly affected than another. Nor can it be explained why tubercle selects, at one time, the bronchial glands for its chief seat, and the lungs at another; nor why cancer infests, by preference, the mamma and the uterus; nor why rheumatism affects the white fibrous tissues; nor why rickets affects the bones. The proclivities and predilections of constitutional diseases to express themselves thus, through lesions of certain organs rather than others are still unexplained. Constitutional diseases are of long duration, thereby affording plenty of time for the development of variations, the tendency to repetitions of severe paroxysmal or aggravated attacks generally existing throughout life. The primary implication of the constitution is, in the greater number of cases, demonstrable. They are not traceable to the extrinsic action of any *virus*, and have none of the properties pertaining to infection. They are thus apparently generated, developed, and sustained through the influence of "particular perturbations of cell life, of the co-ordinating machinery, or both,"—the result of the perversion of the nutrition or assimilative functions of the individual; and are frequently determined by congenital constitution or hereditary tendency. In the greater number of them a more or less obvious disposition may be traced to symmetrical arrangement of the anatomical character of the local lesions already referred to, whether these be internal or external (*Walshe*). External physiognomical differences may generally be recognised as distinguishing one man from another, and due to the peculiarities of his constitution—"*personal peculiarities*." These, again, are due to what has been called "*temperament*," combined with that character of the constitution which tends to the repeated expression of some form of ill-health, always in the same way, and to which the name of *diathesis* has been given. Such external differences between man and man—such *personal peculiarities*—are known to be transmitted from parent to child—*hereditary transmission*. The *tendency* to the expression of certain forms of disease being thus born with the child is due to *hereditary predisposition;* and this tendency may be strong and evident, or it may be but feebly and faintly marked. In the former instance it will become expressed in the midst of circumstances even the most favourable to health. Another remarkable feature in the pathology of constitutional diseases is that the transmission of the hereditary tendency may fail to be expressed in the *children* of a family liable to diseases known to be so transmitted, and yet may appear in the grandchildren. The tendency is thus expressed in *alternate generations*—the law of "*atavism*," as it has been called. The tendency, failing to appear in one generation, may lie dormant, and at last burst forth "in some collateral branch of the family tree;" thus proving that *tendencies* not obviously *expressed* by the parent may nevertheless be *transmitted* by him. A person, therefore, cannot be considered free from the inheritance of constitutional maladies simply because his parents may not have suffered from any of them; and now it is admitted that, beyond *three generations*, the investigation of hereditary tendency is uncertain. When one only of the parents is the victim of constitutional disease, the tendency to similar constitutional disease is most obviously expressed in those children who most resemble that parent in physical conformation and appearance; and it has been observed that, when both parents suffer, the tendency will sometimes be expressed more often in the daughters of the family than in the sons, or more often in the sons than in the daughters, according as the physical conformation resembles most the one parent or the other.

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* *Science and Culture, and other Essays.* By T. H. Huxley, LL.D., F.R.S. Macmillan, 1881. P. 326-345

† Huxley, *loc. cit.*, p. 347.

‡ Huxley, *loc. cit.*, p. 307.

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* Aitken's *Science and Practice of Medicine.* Seventh edition. Vol. i, p. 829.

From the nature of the CONSTITUTIONAL DISEASES as here expounded, it is to be noticed that there are three periods in the history of them to be recognised in their pathology. The FIRST PERIOD may be described as *the period of their constitutional development*; and during this period, unless a constitutional tendency to the disease is suspected, obvious, or known to be hereditary, it may not attract any attention. The SECOND PERIOD may be described as the period during which the *constitutional disease is fully expressed* by the phenomena and symptoms peculiar to each of them. The THIRD PERIOD in the history of these diseases consists of a *series of intervals*, during which the health seems to be improved between febrile paroxysms, or fully expressed conditions of ill-health.

In these three well defined periods we have again ample opportunity for variations as tending to promote the evolution of new diseases.

It is for the cure of the fully expressed disease that the physician is generally consulted—a period when he knows he can do the least good. But when the public become aware through better education of the extent to which health may be preserved, and constitutional diseases averted and mitigated by judicious management during the first and last periods here noticed, the physician will be more frequently consulted as to how the health is to be preserved and improved so as to ward off constitutional diseases. Whenever the physician has to treat constitutional affections in their fully expressed condition, if he is successful in subduing the symptoms for the time, *the interval of comparative freedom from the paroxysmal expressions of disease is a time most precious, which ought not to be wasted, but which ought to be taken advantage of in preserving and improving the general health*, especially by such complete change in the habits and environment of the individual, as his condition and life history may suggest.*

This Influence of Environment is one of the greatest and most substantial of modern biological doctrines. "Of the power of Environment to form or transform organisms, of its ability to develop or suppress function, of its potency in determining growth, and generally of its immense influence in evolution, there is no need to speak. But Environment is now acknowledged to be one of the most potent factors in the evolution of life. The Influence of Environment, too, seems to increase rather than diminish, as we approach the higher forms of being. The highest forms are the most mobile; their capacity of change is the greatest; they are, in short, most easily acted on by Environment. And not only are the highest organisms the most mobile, but the highest parts of the highest organisms are more mobile than the lower." * . . . And students of biography will observe that in all well written lives attention is concentrated for the first few chapters upon two points. We are first introduced to the family to which the subject of the memoir belonged. The grandparents, or even the most remote ancestors, are briefly sketched and their chief characteristics brought prominently into view. Then the parents themselves are photographed in detail. Their appearance and physique, their characters, their disposition, their mental qualities, are set before us in a critical analysis. And, finally, we are asked to observe how much the father and the mother respectively have transmitted of their peculiar nature to their offspring. How faithfully the ancestral lines have met in the latest product; how mysteriously the joint characteristics of body and mind have blended; and how unexpected, yet how entirely natural a recombination is the result. These points are elaborated with cumulative effect until we realise at last how little we are dealing with an independent unit, how much with a survival and reorganisation of what seemed buried in the grave.

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* Aitken, *loc. cit.*

"In the second place we are invited to consider mere external influences—schools and schoolmasters, neighbours, home, pecuniary circumstances, scenery, and, by and bye, the religious and political atmosphere of the time. These, also, we are assured, have played their part in making the individual what he is. We can estimate these early influences in any particular case with but small imagination, if we fail to see how powerfully they also have moulded mind and character, and in what subtile ways they have determined the character of the future life."

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* *Natural Law in the Spiritual World.* By Henry Drummond, F.R.S.E., F.G.S. Hodder & Stoughton, p. 241.

"This twofold relation of the individual, first to his parents, and second, to his circumstances, is not peculiar to human beings. These two factors are responsible for making all living organisms what they are. When a naturalist attempts to unfold the life-history of any animal, he proceeds precisely on these lines. Biography is really a branch of natural history, and the biographer, who discusses his hero as the resultant of these two tendencies (as well as the physician who similarly discusses the life-history of his patient) follows the scientific method as rigidly as Mr. Darwin did in studying *Animals and Plants under Domestication.*"

"Mr. Darwin, following Weismann, long ago pointed out that there are two main factors in all evolution—the nature of the organism and the nature of the conditions. . . . But it must be remembered that the development of man under these directive influences is essentially the same as that of any other organism in the hands of Nature. We are dealing, therefore, with universal law, . . . and if now we substitute the more accurate terminology of science for the casual phrases by which the factors have been described, it will still further serve to complete the conception of the general principle. Thus, what biography describes as parental influences, biology would speak of as Heredity; and all that is involved in the second factor—the action of external circumstances and surroundings—the naturalist would include, under the single term, Environment."

"These two, Heredity and Environment, are the master influences of the organic world. These have made all of us what we are. These forces are still ceaselessly playing upon all our lives. And he who truly understands these influences, he who has decided how much to allow to each, he who can regulate new forces as they arise, or adjust them to the old, so directing them as at one moment to make them co-operate, at another to counteract one another, understands the rationale of personal development. To seize continuously the opportunity of more and more perfect adjustment to better and higher conditions, to balance some inward evil with some purer influence acting from without, in a word, to make our environment at the same time that it is making us, these are the secrets of a well ordered and successful life."*

Medical journals and Proceedings of Societies teem with records of rare cases, some of which, although apparently of common diseases, differ in some features from the usual type or standard of such common ailments, and therefore they are

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* Mr. Henry Drummond, F.R.S.E., F.G.S., *loc. cit.*, pp. 253-256.

"anomalous" cases of disease, and may be considered as pathological "sports" from normal physiology. Of these Sir James Paget writes as follows:—"It would be of use if such cases were collected by the hundreds and thousands, and we ought not to set them aside with idle thoughts or words about 'curiosities' or 'chances.' Not one of them is without a meaning—not one but might be the beginning of excellent knowledge, could we but answer the question, Why is this so? Or, being rare, 'How or why did this instance happen?' In his eloquent Bradshaw Lecture he expresses his belief that there are rare cases which are also cases of diseases lately new and becoming more frequent, and which are mainly due to morbid conditions changing and combining in transmission from parents to offspring. In all these cases the personal factors are more potent than the conditional—the inner than the outer. We call these diseases constitutional, and the chief fact in them is, that they (or the necessary previous states or predispositions to them) are 'inborn' or 'inbred.'"

There are sufficient reasons for believing, and sufficient facts to justify the belief that some of these diseases were gradually coming into being any (x) number of centuries ago as *new diseases*, and that more recently (though still rare) they have become more frequent.

The following are given as examples of the evolution of new diseases:—

(1.) The peculiar joint disease discovered and described by Charcot in association with locomotor ataxia.

(2.) The peculiar disease of bones to which Sir James Paget has given the name of *osteitis deformans*.

(3.) Anomalous cases of gout (incomplete or suppressed gout), gouty or spontaneous inflammation of veins, such as the femorals and external iliacs, phlegmasia dolens in the male, also association of joint disease with formation of synovial cysts.

(4.) The peculiar disease called "dengue" is also regarded by Hirsch as a comparatively new disease.

May there not be some reasons for believing that "malignant endocarditis" is also a comparatively new disease, and also "myxœdema?" Endocarditis is admittedly an infective disease, a disease which may follow from a slight external lesion, in which an injury tends to fester and not to heal, and in which malignant septic infection occurs.

Such cases are most likely to have been slowly evolved, as domestication became more and more common, rather than when men lived free in the open air,

> "As wild in woods the noble savage ran."

From these and other instances, it may be shown how a mingling of causes may produce a variety of effects, having but little resemblance to the antecedents which played their parts in the production of such compound results—the resultant bearing little resemblance to the parent stock from which it sprung. The combination, for example, of rheumatism with syphilis, or with gout, or scrofula, gives rise to new forms of disease in which it is difficult to separate the individual influence of each of the factors—so much may each be overlaid by the other.

It will *hereafter* become the business of the pathologist to decompose the pathological compounds, and so seek to ascertain the number and arrangements of the units or atoms of rheumatism, gout, syphilis, or nervous influence, which may have entered into the composition of so complex a disease as Charcot's joint disease; which, meanwhile, may be regarded as a form of chronic rheumatic arthritis modified by its occurrence in a patient the subject of locomotor ataxia, and so altered from its pattern by the intervention or commingling of the nervous ailment. (*Lancet*, 20th December, 1884.)

Thus, there are numerous cases and reasons to justify the belief that many diseases of constitutional origin are the results of various morbid conditions changing and combining in transmission from parents to offspring. And there can be no doubt "that changes of type in inherited diseases do take place; but we are prone *to think* too little of the variations—to regard them rather as unmeaning exceptions, or as the results of some unusual external conditions diverting diseases from their customary course. It will be better for us if we study in pathology as in natural history—varieties as much as species—changes as well as more stable forms. It will then be impossible not to perceive, to reflect on, and to appreciate 'the pertinacious persistence of some forms amidst the vast mutations of others.' Types of disease there are, the tenacity with which they are maintained—some even from pre-historic times—in all the varieties of the conditions of our lives, is one of the most remarkable facts in all pathology. But even *they* are not unalterable. Types vary in disease as in species; even in diseases which depend *least* upon external conditions, and *most* on the qualities which are transmitted by inheritance," and Sir James Paget proceeds to lay down rules for study especially applicable to these cases.

These rules are here reproduced, because they demand a very thoughtful consideration of the method to be pursued in the study of evolution as applied in pathology.

"(1.) We should very carefully study all cases which are not according to an admitted type. We should study all exceptions to rules; never thinking of them as unmeaning or accidental. Especially, we should never use, in its popular, but wrong, translation, the expression *exceptio probat regulam,* as if an exception to a rule could be evidence that the rule is right. If we use it, let this be in its real meaning; translating it, as surgeons should, that an exception proves a rule, tests it, searches it—as the Bible says, we should 'prove all things'—to its very boundary. In this true meaning, the words may be an excellent motto for the study of all diseases that deviate from types.

"(2.) We should look out for indications of the existence in the same person of two or more morbid conditions or dispositions such as may be derived from both parents or from several ancestors. For, as in plants and animals there are hybrids and mongrels, or, as in chemistry, many compounds and many mixtures, so are there in diseases. We see them in the multiform and confused varieties of what we have to call rheumatic gout; in gout crossed with scrofula, and syphilis crossed or mingled with scrofula or with gout. It is often not difficult to discern some of these combinations among our cases; and I know few things in practice more useful than to be able, even in some instances, to adjust our treatment to the proportion of each disease in the compound. But we may be sure that there is much more to be learned in this direction; and it is best to believe that we rarely have to do with a simple and unmixed morbid constitution. There are few worse habits in practice than that of commonly saying of one case, 'It is all gout,' and of another it is all scrofula, or all syphilis. We might as well say of any Englishman that he is all Norman, or all Anglo-Saxon, or all Celt. We may, indeed, sometimes see persons who appear to be as types of races unchanged in many centuries, but in practice we had better study every man as, for better or worse, a composite of many ancestors.

"(3.) We should have for all these cases a much more complete and exact study of all the personal conditions of disease than is now usual. Of course, this should include all that can be learned of each patient's family history—though there are few parts of medical inquiry more fallacious than this often is; and at the best it will need, besides, the exactest study of the patient's self. Perhaps the brilliant success which has been achieved by the recent studies of disease-producing organisms or other materials acting on us from without—a success not equalled in any other field of medical inquiry—has made some think too little of those changes within ourselves which occur in such ordinary conditions of life that they may be called spontaneous. Yet these are not less important in the production of diseases, and these must be studied, just as in agriculture soils must be studied as well as seeds. This is true even in respect of those diseases whose essential causes are most evidently external, even of those which are due to specific contagia; their germs or seeds, if I may so speak, will not germinate in an unfit soil. I suppose there is not a day in which most of us do not inhale or come in contact with the germs of some frequent or contagious disease; but they do not germinate in us any more than do the seeds of tropical flowers in our streets or in the fields to which the wind scatters them —we do not offer the fitting soil. And even among those in whom they do germinate, the product varies according to the soil. And the study of this soil, this living soil, is yet more necessary in respect of diseases which come, in part or wholly, by inheritance; for it is in each as personal and distinct as any other constituent of personal character, and the study of it must be intimately personal, with an exact analysis of every disposition to disease. The aim of pathologists in this direction should be for knowledge like that of the keen family practitioner, who, as he says, knows the constitution of every member of a family."

The hereditary transmission and transmutation of diseases are therefore important points to be observed in connection with the evolution or "coming into existence" of new diseases; and the inquiry may be very much assisted by such family records as those which Mr. Francis Galton has reduced to a system. It is only through individual experience that we can obtain—

(*a*.) Authentic records of the transmission by inheritance through many generations of such constitutional diseases as gout, rheumatism, tuberculosis, scrofula, diabetes, and the constitutional form of Bright's disease, or epilepsy through two or more collateral branches of one family.

(*b*.) Instances there are of the transmutation by heredity of epilepsy, migraine or megrim, diabetes, hysteria, alcoholism, in which, through members of the same family, one or other of those affections are replaced by some one or other of them.

Personally I am persuaded of the frequency of epilepsy as an inheritance in families, assuming in some members of the afflicted family, diabetes rather than epilepsy; or of migraine as a form of epilepsy. Such may be regarded as evidence of the co-relation of these constitutional diseases.

From the point of view of Heredity and Environment as all powerful in the evolution of constitutional disease, there is perhaps no subject in the whole range of medical science which the student ought to study more carefully than the cachexia, or special forms of ill health, associated with the occurrence of *tubercle* and *scrofulous affections*. As a practitioner he will find that he becomes often painfully concerned in the deepest interest of families and society, through the threatened or actual ravages of scrofulous diseases. The extensive prevalence of the scrofulous cachexia—the great and almost inevitable mortality of the scrofulous diseases themselves when completely developed, stamp the morbid state associated with them as a topic which, at the outset of the student's career, ought to engage a large share of his study. Most assuredly the physician will have to turn his knowledge of the pathology of scrofula to account in every phase of his professional life. When he fully appreciates what experience has adequately demonstrated, that the scrofulous cachexia springs from causes over which the public (rather than the medical profession) have control, he must be at once impressed with the belief and encouraged with the hope, that when he acquires the confidence of families in the practice of his profession he may exercise a powerful influence for good in teaching how much the public may control the ravages of *scrofula* and *consumption* by prudent marriages, by sanitary attention to offspring, and by the necessity of free ventilation and of fresh air in dwellings. There are several circumstances which show the great influence of public sanitary measures in controlling the development of scrofula, when these measures are scientifically directed to the preservation of general health, especially where men are associated together in great communities—an influence much greater than the best directed efforts of the medical profession can establish through their *materia medica*. It is by the mode of life as citizens of the world, in the social relations of husbands and wives, parents and children; in the public relation of masters and workmen, that the extent and ravages of *consumption* and *scrofula* are to be controlled. It is by a strict attention to the rearing of offspring, and in the subsequent regulation of food, clothing, cleanliness, and occupation; in the choice of a profession, and by many other circumstances which have an obvious influence (perhaps at first sight inappreciable) on the maintenance of the general health, that our hopes of success as practitioners of medicine must rest in the prevention of that bad habit of body which develops, propagates, and tends to the evolution of new forms of scrofulous diseases in civilised society.*

It is impossible to measure or estimate the relative importance of those two factors in the evolution of constitutional diseases, Heredity and Environment. The main influence may be assigned to Heredity; but in practice we are mostly concerned with the Environment of the patient. "What Heredity has to do for us is determined outside ourselves. No man can select his own parents. But every man to some extent can select his own Environment. His relation to it, however, largely determined by Heredity, in the first instance is always open to alteration. And so great is his control over Environment, and so radical its influence over him, that he can so direct it, as either to undo, modify, perpetuate or intensify the earlier hereditary influences within certain limits."

"The influence of Environment may be investigated in two main aspects. First, one might discuss the modern and very interesting question as to the power of Environment to induce what is known to recent science as variation. A change in the surroundings of any animal, it is now well known, can so react upon it as to cause it to change. By the attempt, conscious or unconscious, to adjust itself to the new conditions, a true physiological change is gradually wrought within the organism. . . . Not only changes of food, but changes of climate and of temperature, changes in surrounding organisms, in the case of marine animals, even changes of pressure, of ocean currents, of light, and of many other circumstances, are known to exert a powerful modifying influence upon living organisms. These relations are still being worked out in many directions, but the influence of Environment as a prime factor in variation is now a recognised doctrine in science." †

These principles, so eloquently and lucidly expressed by Mr. Drummond in his most impressive and remarkable work, from which these quotations are taken, cannot fail to be most suggestive in explaining the influence of evolution in the origin and development of constitutional diseases, thereby furnishing another important contribution to that scientific pathology which Professor Huxley has shown to be in reality the subject matter of ordinary biology.

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* Aitken, *loc. cit.* Vol. i, p. 1,030.

† Mr. Henry Drummond, *loc. cit.*, p. 259.

(To be continued.)

A CASE OF PUERPERAL MANIA WITH REMARKS.

By DONALD FRASER, M.D.,
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I am induced to report this case because it, contrary to my usual experience of this disease, ended in death, and I had the opportunity of making a *post-mortem* examination which enabled me to ascertain that the disease was primarily a puerperal metritis with septicæmia, the mental symptoms being of the nature of acute violent delirium as distinguished from those of ordinary insanity.

Mrs. C., æt. 28, multipara, was admitted to the Paisley Burgh Asylum, on 21st July, 1885, suffering from puerperal mania of two days' duration. She was reported to have been delivered of a child eight days before and to have complained of abdominal pain a day or two before the maniacal outbreak. When admitted she was exceedingly noisy and incoherent, writhing and struggling in every conceivable way, biting and tearing at any one that came near her. The only evidence that she in any way attended to what was said to her was that she sometimes repeated a word or phrase of a question addressed to her. There were sordes on her lips and foam working at the sides of her mouth. Her face was haggard, and there were congested patches on her cheeks and nose. Her condition was such that her temperature could not be taken, nor could the condition of the various organs be ascertained, though the pulse was found to be very rapid, weak, and compressible. Nothing remarkable could be found about the abdomen beyond the ordinary effects of recent delivery; whether tender or not could not be ascertained. When left alone she constantly sought to tear off her clothes. Milk was given to her, which she took with spasmodic gulps.

Next day, the 22nd July, the record was much as above, but there was observed to be some œdema of the feet and legs. Eggs and milk, stimulants, and a warm sitz bath were ordered. After the latter some dirty vaginal discharge came away. It was specially ordered that she should be kept under constant supervision night and day. My prognosis of her case was bad. Apart from her bad physical condition, the exhaustion consequent on her state of acute delirious mania was in itself an obvious source of danger. I pass over the details of her case, which are entered at some length in the case book of the asylum, and dwell only on the points of special medical interest. During next day, 23rd July, the vaginal discharge ceased, and though she seemed somewhat better and more coherent, if anything, yet towards the afternoon the thermometer, held in her armpit for three minutes, rose to 104°, and the pulse, which was about 120 in the morning seemed more frequent and harder. The tongue was brown and leather like. There was great thirst, and she even craved for solid food. The bowels had moved in the morning as the result of a dose of castor oil. At 11 P.M. she was more coherent, and appeared to notice things about her, though still far from comprehending the situation. She lay more quietly, seldom attempted to rise, and, instead of struggling and tearing with her hands, picked at the blankets and at her nose and mouth; the tongue dried quickly; the pulse was very rapid and thready.

24th July.—Passed a restless night, took milk occasionally. Morning temperature 101·5°, pulse 120, evening temperature 102°. On the whole, and as compared with her condition the previous day, she was somewhat better, though it will be observed the temperature showed no corresponding improvement. In the evening the bowels moved naturally.

On 25th July, it is noted "patient slept well last night from 11 P.M. till 4·30 A.M., and seemed to be greatly refreshed. She is occasionally pretty sensible, but at times wanders away, and has hallucinations of hearing." The temperature, however, never fell below 101·8°. In the forenoon, after waking from a sleep of an hour's duration, she became very excited, and remained so for several hours.

26th July.—Slept from 2 to 3·30 this morning, became very violent after waking, got milk, then fell asleep again about 6 A.M. and slept till 12 noon, got stimulants, milk, and egg-flip, and remained quiet during the afternoon, when she was *apparently perfectly rational*, and could give an account of many of the circumstances attending her entrance to the asylum, remembered, for instance, being driven up to the door. Her bodily condition, however, showed no corresponding improvement, her temperature was 103°, pulse 112, and respirations 30. She complained of no pain. The very slight vaginal discharge which had returned after its temporary stoppage, and the slight œdema of the feet and legs, more particularly of the right foot and leg, were still present. She again slept this evening, got stimulants on awaking, and fell asleep soon afterwards. Dr. M'Murrich, the assistant medical officer, was of opinion that the administration of food and stimulants immediately on waking had arrested the severe maniacal attack which had previously followed a sleep.

27th July.—In spite of having slept well, and having had nourishment occasionally during the previous night, in the morning she became exceedingly maniacal and attempted to tear everything off herself, and towards the afternoon it was necessary to resort to forcible feeding, as she refused food, and neither pulse nor temperature could be taken owing to her being unmanageable.

28th July.—She had a quiet day after a restless night, but still refused food. Pulse about 100 and of fair strength, respirations 25. Her urine was drawn off and examined; no albumen. On examining the chest, the right base was dull to percussion, and the respiratory murmur very feeble over the same region. There was a very foul vaginal discharge. At 5 P.M. her temperature was 101·6°, while her pulse and breathing presented nothing remarkable. At 7 P.M. she died suddenly.

A *post-mortem* examination was made on 30th July, at 11·30 A.M., 40½ hours after death. The main points of the report are as follows:—

Body well nourished. *Post-mortem* rigidity almost passed off; joints slightly rigid. Pupils equal, slightly dilated. There are the remains of herpetic eruption on the upper and lower lips. There is *post-mortem* lividity on the neck, shoulders, back, and buttock. The right leg is thicker throughout than the left, and over the tibia and dorsum of the foot it pits on pressure.

Head.—On removing the scalp there is a slight blood effusion between the occipito-frontalis muscle and the pericranium over the left parietal region posteriorly, and near the sagittal suture, also one over the sagittal suture posteriorly. Calvarium thin and symmetrical, upper surface of *dura mater* pale and shining. The longitudinal sinus was empty. The vessels of the soft membranes over the parietal and anterior occipital regions of both sides were distended. Section of brain showed nothing of pathological consequence.

Heart flaccid and empty, valves healthy.

Lungs.—The right lung at apex was adherent by easily torn lymph to the costal pleura. The upper surface of the diaphragm was more firmly adherent to the base of the lower lobe, and the right rounded surface towards the base was adherent to the chest wall. The upper surface of the diaphragm on this side was markedly hyperæmic, and the vessels were engorged. There were about 6 oz. of clear fluid in the right pleural cavity. The lung was crepitant throughout. On section, the lower lobe was hyperæmic and œdematous. No abscesses were found. The left lung was healthy and free from adhesions.

The *liver* was enlarged, and weighed 3 lbs. 1½ oz. It felt greasy to the touch, and on section it had a fatty appearance. No abscesses found.

Kidneys.—On section, pyramids slightly hyperæmic, cortex paler than normal. Capsules non-adherent.

The spleen was slightly enlarged and hyperæmic.

The bowels were pale and distended with gas. There was no evidence of peritonitis or enteritis. The bladder was contracted.

The uterus was enlarged. It measured from the external os to the fundus 4¾ inches in length, and its greatest transverse diameter was 4½ inches. The vessels of the broad ligaments were prominent like cords. The surface of the external os was dark and granular; this appearance extended up the cervix to the internal os. The interior of the uterus contained a small quantity of dark grumous fluid, and the whole internal surface was of a dark colour. The seat of the placenta at the upper part of the anterior wall was covered with black granular material.

The right external iliac and right common iliac veins at their division contained a few soft granular clots. The right internal iliac was completely blocked by a firm whitish clot. The femoral vein was empty. The veins on the left side were free.

The pathology of this case is made quite clear by the *post-mortem* examination. We have septic inflammation of the uterus affecting the placental seat. The poison absorbed on the right side produced thrombosis of the internal iliac vein leading to the production of the phlegmasia dolens. The pleurisy of the right side, affecting chiefly the diaphragmatic surface, points to a septic infection. The brain disturbance was indicated by mania of the acute delirious order, and was symptomatic of the physical conditions. The ebb and flow of the septic poisoning, if I may so put it, may explain the occasional return to partial or almost complete sanity, and the relapse into furious mania which preceded her death was no doubt, through the exhaustion induced, the immediately exciting cause of that event, which in any case could scarcely be averted, though the condition of the various organs did not necessarily warrant such a termination at that time. Indeed, under the careful feeding which was the only active mode of treatment open to us in the circumstances, or indeed indicated, she had improved in some respects, and gave me the impression that she might still pull through.

Clinically, puerperal insanity is divisible into such cases as the subject of this paper, where the mental conditions are symptomatic of a grave and acute bodily disease such as septicæmia, and the subjects of which have as much right to be classed insane as those suffering from the delirium of typhus; and cases where the puerperal condition was but one factor, though possibly an important one, in the production of the mental unsoundness.

I will take another case illustrative of septic poisoning which, from its instructive character, I will briefly describe.

Mrs. M., æt. 32, multipara, with no family history of insanity, was admitted into the Paisley Asylum 1st August, 1880, with a history of having been delivered of a child a week before, and of having had puerperal convulsions followed by intense excitement. She was quite incoherent and unmanageable, and had not slept for 48 hours before admission. She was also reported to be suicidal, and dangerous to others. Before admission she had been blistered and bled at the arm. She was most violent in her conduct when admitted, and appeared to have frightful hallucinations of sight—saw everything about her on fire. Saw her husband in the fire, &c. The only noticeable thing about her physical condition that could be determined was that her urine contained albumen to about a fourth. Under treatment directed towards the condition of the kidneys, this patient was discharged completely recovered twelve days after admission, and fifteen from the onset of the maniacal attack. Here the blood-poisoning, as evidenced by the albuminuria, with the influence of the convulsions on the brain, was sufficient to determine the maniacal outbreak, which passed off quickly and satisfactorily as soon as the kidneys recovered their functions. She has since then been delivered of another child, made an excellent recovery, and had none of the above conditions. Now, it will be evident that such cases as these are of quite a different character, and demand quite different disposal and treatment from the following case, which I quote by way of contrast:—

Mrs. W. was admitted in a state of acute puerperal mania on the 15th March, 1884. On examination she was found to be suffering also from phthisis, there being evidence of consolidation of the right apex. In this poor woman the maniacal condition immediately followed labour, and could not have been due to septic absorption but rather to the shock and exhaustion of labour acting upon a weakened and predisposed subject. The night of the day on which she was confined she ran out of the house and was found concealed in a coal cellar. She remained under treatment for ten weeks. She ultimately became quiet and manageable but deeply melancholic. Her temperature remained febrile throughout, and two months after admission the physical signs of cavity existed in the right sub-clavicular space. She also suffered from night sweats. She was removed home by her relatives, as I supposed, to die, but to my astonishment about three weeks after her removal she called at my house so much improved that I did not at first know her. She talked rationally and cheerfully and looked well physically. In this case removal from the asylum had been of the most signal value, as is not seldom the case in such circumstances.

Since 1876 I have had, including the above cases, under treatment in the Paisley Burgh Asylum, sixteen cases of puerperal insanity. I have not included amongst these cases those asserted to be due to pregnancy and lactation, or chronic cases with an old history of a puerperal causation. Seven of these cases were admitted in a condition of mental depression and five were suicidal. Fourteen were discharged recovered or more or less improved. Two are still under treatment; one of these with an insane heredity, has become demented, the other is a recent case where the puerperal state was but the exciting cause of the disease, and she appears to be making progress towards recovery.

Another was a case that might be termed one of recurring insanity in a woman with a bad husband and living under bad social conditions, who has been five or six times admitted into the asylum, and whose insanity, while repeatedly precipitated by childbirth, had no necessary connection with it.

I do not propose here to analyse all those sixteen cases, as they are not sufficient in number to do that satisfactorily. Those interested in this subject will find in Dr. Clouston's excellent "Clinical Lectures on Mental Disease," a full and suggestive analysis of sixty cases which came under his observation.

The question which I have again and again asked myself is, why such cases as those of Mrs. C. and Mrs. M. should be sent to an asylum? As things go, to be sent to an asylum involves serious social disabilities, and as asylums are at present constituted, they are for such cases inferior to hospitals. It is of course out of the question to send such cases to the ordinary ward of a hospital, but why not make provision for the reception of such cases in ordinary hospitals, which I believe could be very easily done, and would be to the advantage both of the patient and medical education.

CASE OF HERMAPHRODITE.

By W. JOHN LAWRIE, M.B.

On the 6th October, Mrs. Q., in Ayr, gave birth to a child at the full term, which presented the following peculiarities:—The labia majora appear to be somewhat prominent and distended, giving the impression of hollowness to the examining finger. At their lower extremities there is a minute opening forming evidently the orifice of vagina and urethra. The margins appear red, moist, and somewhat inflamed, as if from the passage of urine over their surface. On questioning the nurse, she cannot affirm that urine does proceed from this opening, but in the absence of other outlet, it must be assumed to be the passage for the urinary secretion.

It is at the upper extremity of the labia that the unusual feature of the case is found. Here is situated a small, but well formed penis 1½ cm. in length. The glans penis is of normal appearance, except that it is unprovided with a meatus. The foreskin is perfect in development, and though capable of covering the glans, remains normally in a drawn back position. The frænum consists of a tightened band of tissue arising at the point of the glans as in normal conditions, and extending downwards and backwards till it disappears in the orifice of the vagina. Labia minora are not present.

In regard to sex, the child appears to approximate more nearly to the female than to the male organisation, as there are no testicles, and the vagina, though small, has the normal situation. The vulva, however, is unusually prominent, resembling somewhat a scrotum divided by a median section. It has already been observed that there is no meatus urinarius. Otherwise the child appears to be of normal constitution, and is healthy and well nourished.

CURRENT TOPICS.

Glasgow Obstetrical and Gynæcological Society.—The inaugural meeting of this Society was held on the 14th October, in the Hall of the Faculty of Physicians and Surgeons, Glasgow. Prof. Leishman, the Honorary President, occupied the chair, and gave a brief address. He referred to the need of such a Society in a community such as Glasgow, where the amount of practical experience must be very great. Dr. Joseph Coats, who showed a case of deformity of the ears and eyes of a child, spoke of the importance of pathology in the proceedings of such a Society, and also indicated that one requirement of success would be that their proceedings should receive publicity. As editor of the *Glasgow Medical Journal*, Dr. Coats offered to publish their proceedings, and advised that the Society should appoint some one to provide reports. Dr. W. L. Reid, President of the Society, then read a paper "On recent methods of treatment of the asphyxia of new-born children," which will be found at p. 344 of this issue.

THE BERLIN VACATION COURSES FOR MEDICAL MEN.—As these courses are year by year assuming greater importance as a means both of medical education and of keeping those who attend them abreast of the times, it may, perhaps, be interesting to our readers if we give a short account of them based on personal observation. The association of gentlemen, who conduct the vacation courses in Berlin is formed this year of nearly 60 members who, either from public appointments, private polikliniks, or otherwise, have, or consider they have, special facilities for teaching the subjects which they profess. The subjects included in the syllabus are:—Normal and Pathological Anatomy, Physiology, Materia Medica, Mental and Nervous Diseases, Surgery, Medicine, Ophthalmology, Otology, Laryngology, Gynæcology, Dermatology, Syphilis, and Public Health, and, with the exception of Materia Medica, which is only professed by one gentleman, there are several teachers in each department to choose from. Any gentleman who wishes to attend any of the courses must, first of all, call upon the secretary, Herr Anders, 2 Hagelsberger Strasse, Berlin, to whom he pays his fee, and from whom he receives a card of admission, which is afterwards given up to the teacher. The courses are, for the most part, practical, consisting of the demonstration of cases, working with the microscope, performing operations on the dead body and on phantoms, making *post-mortem* examinations, &c., although in many of them systematic lectures are also given at special hours. A better idea of the system will perhaps be obtained if we describe more in detail the method of instruction adopted in one or two of the courses.

Dr. Guttmann, author of the well known work on *Physical Diagnosis* translated for the Sydenham Society by Dr. Napier, one of the editors of this *Journal*, holds his autumn class of clinical medicine in the Städtisches Krankenhaus, Moabit, on Mondays, Tuesdays, Thursdays, and Fridays, from 9·30 till 11 A.M. During the past month perhaps fourteen or fifteen gentlemen attended his demonstrations, and the method of instruction was as follows:—From half-past nine till ten the class met in an empty but well heated ward, in which eight or nine patients, stripped to the waist, were seated on chairs. Each gentleman occupied himself during the half-hour with the physical examination of one or more of the patients, and his diagnosis was confirmed, corrected, or commented upon by Dr. Guttmann. From 10 to 11 A.M. was occupied by a ward visit, during which interesting cases were demonstrated and examined. As Dr. Guttmann is director of the whole hospital (containing about 350 beds), all the wards are under his control, so that he has a very large amount of material for teaching purposes. Several of the wards, which are visited along with the others, are devoted entirely to children's diseases. The clinical demonstrations are most interesting and instructive, and as Dr. Guttmann speaks slowly and with great precision he is easily followed even by one who is not very familiar with the language. The Moabit Hospital is built upon the plan of our own Belvidere, and its grounds, which cover an extensive area, are prettily laid out. It is something quite new for a Scotch student to look from a ward window, the sides of which are covered with luxuriously growing creeping plants, and to see beyond pleasant grass-plots with green arbours in which the patients can sit and have their meals during the warm summer weather. One thing that also strikes a stranger as something new is that in the male wards the nurses are men. The wards are, however, much lower in the roof and narrower than those of the Western or Royal Infirmaries, and are also overcrowded, each ward containing from 28 to 30 beds.

Dr. A. Martin's class of Gynæcology is held in what is denominated on the gateway a *Privat Anstalt für Frauenkrankheiten*, which means, what it really is, a private hospital for these diseases. It is a new building, and is fitted up with every modern requisite for clinical and teaching purposes. Dr. Martin's class numbered about 36, and was divided into three sections, the work being apportioned as follows:—From 11 to 12 in the forenoon the operations, of which there were a large number, including many abdominal sections, were performed in the presence of the whole class. From 12 to 1 P.M., a systematic lecture on Gynæcology was delivered, and from 1 to 3, twice a week, each section of the class examined the patients attending the Poliklinik under the direct superintendence of Dr. Martin. In this way, each week, every member of the class had the opportunity of examining manually and with the speculum from 10 to 12 patients. One is somewhat sorry for the patients, whose feelings do not seem to be in the least considered, and who submit to the inevitable with a stolid resignation as the price they have to pay for the advice which they receive. We have seen patients go out of the consulting room hardly able to stand; this is anything but pleasant to men who have been trained in a Scotch school, where, as far as possible, the feelings of the patients are always considered, and we think that skill in gynæcological diagnosis may possibly be purchased too dear if acquired at the sacrifice of that kindliness of manner and sympathy with human suffering which should characterise every medical man worthy of the name. It will thus be seen that, so far as the student is concerned, Dr. Martin's course is a most complete one in every sense of the term. He is a bold and skilful operator, and an enthusiastic lecturer; but, as he speaks with great rapidity, he is not so easily followed by a foreigner as Dr. Guttmann.

The course of Dr. Ehrenhaus, on Children's Diseases, is held in the Poliklinik, 40 Lothringer Strasse, on Mondays, Wednesdays, and Fridays, from 5·30 to 6·30 P.M. It is conducted very much after the method adopted in our Infirmary Dispensaries at home, with the exception that much more time and trouble are devoted to the teaching department. An assistant physician sat in an adjoining room who sent in the important cases to his chief, who demonstrated them to the gentlemen attending. It will give some idea of the variety of material if we say that in two days we saw typical cases of whooping-cough, typhoid fever, rickets, measles, scarlatina, diphtheria, tonsillitis, eczema, &c.

The other courses of the series were conducted in much the same manner, and those on the special subjects, such as the ear, throat, skin, &c., seem to have been specially well attended. In fact, we know of one gentleman who was refused admission to a Throat course because there was no room for him. The course of Jacobson on the Ear may be mentioned as having been a very good one. During one visit which we paid to his clinique, we saw about 40 patients sitting with specula in their ears and labels on their shoulders with diagrams of the condition present, and these were being leisurely examined by the members of the class under the superintendence of the teacher. In another part of the room opportunity was afforded the students for catheterising the Eustachian tube, &c. In addition to systematic instruction on Otology, such a demonstration as that we have just noticed was given twice a week during the course.

It will thus be seen that in Berlin every facility is afforded medical men who may wish to spend a few weeks of the autumn in study. One of the chief drawbacks is that the different courses are often held at considerable distances from one another, so that it is sometimes a little difficult to arrange the hours properly. This, however, is in great measure compensated for by the excellent service of tramways and omnibuses which exists in the German metropolis, and it is by no means an unpleasant interlude to the more serious work of following a medical demonstration in a foreign tongue to drive through the busy streets of the capital, from one class to the other, in a tramcar.

We understand that the German teachers believe that in a very short time Berlin will rival Vienna as a school of medicine —that it simply requires to be known to be such already— and this, from what we have ourselves experienced here, we see no reason to doubt. The amount of material, particularly in special subjects, is simply enormous, and it is placed at the disposal of the student in the most complete fashion. The German hospital-patient submits to an amount of rough handling which would not be tolerated for a single moment in Scotland, and the German student or practitioner is certainly by no means slow to subject him to it. We have often wondered that the patients should come back to the cliniques after one experience; but, as the result no doubt of the strict military discipline to which every German is subjected in his youth, they return at the word of command with a punctuality and regularity which is astonishing. At present we cannot give a personal opinion as to the merits of the Vienna School, but we are sure that it must be difficult to provide anything better than the instruction which is given in the *Feriencurse für praktische Aerzte* at Berlin.

REVIEWS.

Contributions to the Surgical Treatment of Tumours of the Abdomen. Part I.—Hysterectomy for Fibrous Tumours of the Uterus. By THOMAS KEITH, M.D., LL.D. Edinburgh: Oliver & Boyd. 1885.

IT has seldom been our privilege to peruse any book with greater pleasure than this all too brief little contribution of Dr. Keith's. It is not permitted to every one to realise, through personal contact, with what truth and earnestness he labours, but none need regret the privilege when so able a testimony lies within the reach of all. Teeming as is the press with medical literature, suggestive too frequently of a purely commercial enterprise or of individual advertisement, there is something delightfully refreshing in turning to a book so absolutely free from any such selfish considerations. Nothing can exceed the modesty with which the author treats of his unparalleled success, and none will fail to recognise the genuineness and conscientiousness with which he has handled his cases. When it is stated that hardly a case has been operated upon without careful watching for some years previously, many a surgeon's own conscience will tell him the worth of such a man's teaching and practice. It indicates not the reticence of a nervous and tardy operator, but the conscientious and intellectual forbearance of an experienced and right-minded surgeon. One need hardly say that the book is almost beyond criticism. When an operator can tabulate thirty-eight cases of a major operation like hysterectomy with only three deaths, there is little left for the reviewer to do but to accept everything and question nothing. The 38 cases which form the basis of the preliminary remarks are detailed, and occupy more than three-fourths of the book. Cases vii and xxi were so bad in their symptoms after operation—the temperature reaching in one case 106° and in the other 105°—that it seems as if fate had determined they should not die under Dr. Keith. As an illustration of almost unsurmountable difficulties at the time of operation, case xv may be alluded to. The adhesions were of the most intimate character, in no place was the tumour free; bladder, bowel, and mesentery all alike having to be torn or cut away from their attachments. The patient made an excellent recovery.

With the knowledge derived from these 38 cases and others in large numbers, which have been simply watched and never treated, Dr. Keith gives the following class of patients in which hysterectomy may be reasonably advised:—

"1. In very large, rapidly growing tumours of all kinds in young women. By a large tumour, I mean upwards of 20 lbs.

"2. In all cases of real fibro-cystic tumours, if they can be removed. Also in all cases of suppurating tumours.

"3. In most of the cases of the soft œdematous fibrous tumour.

"4. In cases of large bleeding fibroids of any age, provided that the patients are not approaching fifty years, and provided that the lives are practically useless, and that further experience in the operation shall show that the mortality of hysterectomy is likely to diminish.

"5. In certain cases of tumours surrounded by free fluid the result of peritonitis, provided that the fluid shows a tendency to re-accumulate after two or three punctures."

With regard to the operation itself, the length of the primary incision is such as to admit of the tumour being turned out whole. "The incision is always carried right through the umbilicus." In closing the wound a large number of sutures are used, embracing in their insertion all the structures of the parietes. Upon this method of closing the abdominal incision the author is very emphatic, believing that it is only by this careful and perfect occlusion of the opening that any subsequent tendency to hernia is prevented.

The pedicle or stump, which is the all-important feature in the operation, is treated extra-peritoneally. All the parts are first drawn gently together by a thick silk ligature or by a soft wire. The stump thus secured, a "very large thin clamp" is applied. The exposed surface is then freely treated with a saturated solution of perchloride of iron in glycerine; dried, and finally dressed with iodoform and salicylic wool. Although the clamp with the extra-peritoneal fixation of the stump is the method at present adopted by Dr. Keith, he nevertheless looks forward to the time when, as in ovariotomy, the pedicle may be returned into the peritoneal cavity. Whether the cautery will be the means of introducing such a practice is uncertain. While it appears to be effectual upon normal uterine tissue, the tough fibrous character of the uterine fibroid seems to give way beneath, ligation being necessary for the vessels, which bleed freely.

As regards drainage, only in the worst cases where there is a possibility of continuous oozing or recurrent hæmorrhage is a glass tube used. The carbolic spray, with the exception of a few of the earlier cases, is discarded, and the very thought of the "years of vexation and disappointment" experienced during its use seems to incite the author to opinions and expressions a little foreign to the otherwise modest and moderate discussion of his subject.

Whether the operation of hysterectomy will ever become sufficiently successful to render it one of simple expediency rather than, as at present, only of absolute necessity, remains yet to be proved. But there can be no more reason—if such an operation could be brought to the pitch of success equal to that, say, of osteotomy—why a woman should not be spared years of suffering and misery, although with the almost certain prospect of relief at the menopause, than that a man should go through life with a crooked leg instead of a straight one. Until, however, such a pitch of perfection be acquired, we have no moral right to advise any such grave procedure as hysterectomy except in the very worst cases.

We have said enough in commendation of this admirable little book; it only remains for us to wish Dr. Keith a continuance of his successful labours, and to hope that ere long we may have the pleasure of perusing a second edition with such valuable additions as he will undoubtedly be able to make.

A Text-Book of Pharmacology, Therapeutics, and Materia Medica. By T. Lauder Brunton, M.D., D.Sc., F.R.S. London: Macmillan & Co. 1885.

Beyond all doubt the work before us must take rank as *the* English text-book on the subjects of which it treats. It differs in most respects from any work on Materia Medica with which we are acquainted, and may be said to some extent to mark a new departure in the manner in which this subject must henceforth be regarded and taught. It is true that for many years physiological action, as distinguished from empirical knowledge, the fruit of experience and observation, has assumed more and more importance as the best foundation on which to build a rational system of therapeutics; and the results of such a mode of studying therapeutics are encouraging enough, as witness the extended use of the nitrites in disease, the change in our views as to the true place and power of digitalis and many other powerful drugs, the whole field of physiological and therapeutical antagonism, matters which have been elaborated mainly by the experimental method. This tendency to erect a system of therapeutics on a tangible experimental basis is noticeable in all the more recent therapeutical works, in which more and more space is given to physiological action and its importance more and more forcibly insisted on. In Dr. Brunton's volume the physiological element is accorded greater consideration and prominence than in any hitherto published. He "begins at the beginning" of his subject by giving a sketch of the normal functions of the different parts of the human body before discussing the action of drugs on these parts, this physiological knowledge being a matter which both student and practitioner are apt to forget, in which also they are apt to err when applying physiological data in the study of pharmacology and therapeutics. In this way the whole of the first and most important section is taken up—that dealing with "the methods by which the action of drugs is determined, the manner in which each function of the body can be modified by drugs, and the general *rationale* of the use of drugs in disease"—in other words, with the mode of conducting experimental pharmacological research, and with the results of these investigations and their application in the treatment of disease. He defends the experimental method with much vigour, and hits energetically at the anti-vivisectors. Those who know much practically of the enormous difficulties now put by law in the way of the experimentalist, will notice with a certain subdued sense of humour the prominence given to the succeeding chapter on the action of drugs on protoplasm, blood, low organisms, and invertebrata. The author then discusses in order the action of drugs on muscle, on nerves, spinal cord, brain, organs of special sense, respiration, circulation, the surface of the body, the digestive system, tissue change and excretion, and the generative system, finishing with short chapters on modes of administering drugs, antidotes, antagonism, and dosage. Then we have the section on General Pharmacy and the Inorganic and Organic Materia Medica. In this connection Dr. Brunton makes a proper enough protest against the cramming of students' memories with details which even the manufacturing chemist does not try to remember, but finds when wanted, in a work of reference. At the same time it is to be borne in mind that Dr. Brunton makes this protest in order to make room for his more important physiological studies, and that considerable danger lies in minimising the importance of pharmacy. The saying of the late Professor Sharpey (here quoted), "You may as well require of a medical student a knowledge of the whole art of cutlery before you set him to dissect," is not so full of wisdom as it looks, especially as there is some risk of its being used as a reason for altogether neglecting the decried study. A student will be a better dissector, he will certainly make a better surgeon, the more he knows about cutlery; he should be able to select the kind of knife likely best to suit his purpose, to know a good knife when he sees it, to keep it in good order, and above all to sharpen it *secundum artem*. And similarly the physician will prove most valuable at the bedside who has the most extensive and thorough acquaintance with the weapons with which he means to fight. He is a poor physician who has to rely entirely on his druggist.

It is hopeless to attempt anything like a detailed criticism of such a work as this. Having indicated above its general scope, we would only add the impression which it leaves of reminding one too much of the laboratory and too little of the bedside. The absence of evidence of much clinical work is very striking. It seems to reveal the hand of a master in the laboratory rather than that of the experienced clinical physician. While, therefore, Dr. Brunton's book does much towards establishing therapeutics on a scientific basis, and so far will be of value to the thoughtful practitioner, it is not likely to be a favourite with the despised but useful "practical man" in search of hints. Its bulk will rather frighten the majority of students; it is in no sense of the word a "Grind."

An endeavour is made after an "International Pharmacopœia" by the introduction of American as well as British official preparations. It is almost a pity that Dr. Brunton, after postponing publication of his work for fifteen years, as he tells us in the preface, did not wait another month or two for the new issue of the *British Pharmacopœia*.

The book is unusually well supplied with indexes, no fewer than 110 of its 1139 pages being so occupied.

Hay Fever, its Etiology and Treatment, with an Appendix on Rose Cold. By MORELL MACKENZIE, M.D.Lond. Third Edition. London: J. & A. Churchill. 1885.

THE third edition of any work requires but little recommendation from the pen of the reviewer, and this is especially true when the writer combines the literary ability and scientific skill of the author of the work now before us. Of *Hay Fever* little can be said that has not been said already. The present edition seems to have been issued more because the second edition had become exhausted than because Dr. Mackenzie had any methods of treatment more successful than the old to communicate to the medical public. Although all the most recent methods of managing this distressing complaint are detailed and criticised, it can hardly be claimed that the results as regards the patients are more encouraging than formerly; still it must be confessed that the author hardly gives our American friends as much credit as they deserve for their efforts towards the attainment of a radical cure by surgical means.

The appendix on Rose Cold, a somewhat rare affection seemingly dependent, like Hay Fever, on individual idiosyncrasy, is of little practical value to the physician except in so far as it directs his attention to the disease. It is in fact more a collection of evidence establishing the identity of the disease than a description of diagnostic or therapeutic value.

The essay is written in Dr. Mackenzie's usual clear and agreeable style, and can be strongly recommended to those who have not already studied the earlier editions, and are anxious to do all that can be accomplished for the comfort of those who are so unfortunate as to suffer from this troublesome disease, though it is to be regretted that so little hope of successful treatment by therapeutic means can be held out to the practitioner.

Veterinary Pharmacology and Therapeutics. By J. B. Gresswell, M.R.C.V.S. London: H. K. Lewis. 1885.

This work is based on Martindale and Westcott's well known *Extra Pharmacopœia*, and those familiar with the latter will at once recognise the resemblance between the two books. It should prove of great service to those in country and colonial practice, who have often to do a little in the way of veterinary work. The value of the work would have been increased had publication been delayed a couple of months to permit of the embodying of the alterations made in the new edition of the *British Pharmacopœia*.

Ringworm: its Diagnosis and Treatment. By Alder Smith, M.B. Third Edition. London: H. K. Lewis. 1885.

The favourable notices of the earlier editions of this work which appeared in former issues of this *Journal*, may be held as applying with unabated force to this, the third edition. We observe, however, that the book is increasing rapidly in size, and is losing its character as a "concise guide," which its author intends it to have.

Good Remedies—out of Fashion. By C. J. Hare, M.D. London: J. & A. Churchill. 1883.

Dr. Hare's address, delivered two years ago at a meeting of the Metropolitan Counties Branch of the British Medical Association, is marked by much of that sturdy common sense said to be characteristic of the English practitioner. It does good service in withdrawing our attention for a time from "new remedies," and fastening it on the older and well-tried therapeutical procedures, such as the judicious use of alcohol, milk, emetics, opium, purgatives, and bleeding. Dr. Hare's words on blood-letting are specially worthy of being borne in mind by those who hold to the "timid do-nothing" views of the present day.

One Hundred Years of Publishing, 1785-1885. Philadelphia: Lea Brothers & Co. 1885.

It is seldom in the history of any trade that such a record as this can be shown—an unbroken history of a century passed by one firm in honourable and remunerative work. This little volume, tastefully got up and well printed on the thickest of paper, giving an account of the rise, the work, and the present position of Lea's publishing firm, is full of interest, both as a historical record and a confession of the faith which should animate those concerned in the dissemination of knowledge and the education of public taste.

L'Année Médicale, 1884. Paris: E. Plon, Nourrit & Cie. 1885.

On various occasions we have written strongly in favour of this handy and useful *résumé* of medical progress, and it seems to us that all formerly stated may be applied to the present issue. Its contents are arranged under the usual heads—Anatomy, Physiology, Medicine, Surgery, &c.; and while the literature of countries other than France is not neglected, this volume will be found to deal mainly and most fully with French medical literature. It closes with a review of the year, consisting chiefly of an obituary list for all countries.

REPORTS OF HOSPITAL AND PRIVATE PRACTICE.

GLASGOW ROYAL INFIRMARY.

(UNDER THE CHARGE OF JAMES A. ADAMS, M.D.)

FRACTURE OF SKULL—ELEVATION OF PORTION OF PARIETAL BONE—RECOVERY.—[Reported by J. Nigel Stark, M.B.Edin., House Surgeon.]—James Elder, 11 years of age, was admitted to Ward XV, Glasgow Royal Infirmary, on the afternoon of 14th August, 1885. The history obtained was that the boy had been playing on a wall and had fallen from it, alighting on his head. He was found to be in an unconscious condition, and remained in this state for two or three hours. He then began to improve, and was taken to the Infirmary.

Upon examination on admission it was found that the patient was slightly stupid, and seemed to require some time for deliberation before answering a question. He was, however, perfectly conscious, and knew everything going on around him, and could give a clear history of his accident. The pupils were equal in size, and reacted to light, the pulse was regular; in fact, there was an entire absence of any cerebral symptoms. On examining the head there was no external wound to be seen, but on the right side of the head, over the temporal region, a long deeply indented fracture could be readily felt—the one piece of bone being seemingly crushed under the other. There was also a slight amount of effusion in the same neighbourhood apparently underneath the scalp.

The temperature was normal. Nothing was done for the patient except rest in bed, light diet, purgation, and avoidance of all excitement. The extravasation under the scalp did not disappear, but did not cause any pain or disturbance. The temperature remained normal.

All these favourable symptoms continued for eight days (until the morning of the 22nd August), when suddenly and without warning the boy became very sick, and vomited a good deal. He became drowsy and stupid, and the pupils widely dilated and insensible to light. Temperature 100° F. As soon as possible an incision was made over the seat of injury, and a large quantity of dark clotted blood was cleared out from under the scalp and under the temporal muscle. On thoroughly removing this clot the fracture could then be readily made out. Its whole extent was not followed, but at the part uncovered elevation of the depressed portion was performed. A chisel and small saw were used, and a very large clot was then discovered lying upon the dura mater. This was removed as thoroughly as possible; a considerable amount of hæmorrhage from the middle meningeal artery then occurred, but was controlled after some difficulty. The wound in the scalp was then partially closed, and a dressing of iodoform and carbolised lint applied. The whole operation was done under the most strict antiseptic precautions, including the spray. The boy soon came out of the influence of the anæsthetics, and it was found that his pupils had become normal in size and reacted to light. Some vomiting occurred, but soon subsided. In the evening the temperature was 98·6° F. Next morning it was 98·4° F., and the wound on being dressed looked well and healthy; there had been no bleeding of any consequence. After this evening, when the temperature was 99·2° F., it was never above normal, and not a single bad symptom occurred.

At the present date (10th October) the boy, with the exception of a very small superficial wound, is perfectly well, and is running about.

INCONTINENCE OF URINE DUE TO CONGENITAL DEFECT.—L. B., aged 12 years, was admitted, 25th August, 1885, to Ward XXIII, Glasgow Royal Infirmary. Patient is a healthy looking, well nourished child, but since her infancy she has been troubled with complete inability to retain her urine. It seldom escapes when she is sitting or when in bed, but always when she is walking about. She is perfectly unable to control this discharge. This condition has never been improved for any length of time, though she was for nearly six months in the Sick Children's Hospital, and was treated by various internal remedies—iron, belladonna, &c. After she lies or sits quietly for some time a quantity of urine collects in her bladder, and can then be voided in the usual manner, but when she walks about there is a continuous escape. There is constantly a urinous odour emitted from the patient, and unless great care is taken her legs and thighs become excoriated and painful, especially in cold weather.

Upon carefully examining the genital organs, it was discovered that a mesial division existed, starting from the *mons veneris* in front and passing through the clitoris to the anterior wall of the urethra, the mouth of which was consequently widely dilated and could not be properly contracted.

On the 27th August Dr. Adams rawed the internal surface of the divisions of the clitoris, and also dissected up a flap from the floor of the space between these two pieces. Fine silver wire stitches were then introduced and the split clitoris united, while the flap was allowed to hang over the urethra as a sort of lid. The wound was then dusted over with iodoform and oiled lint applied.

For the first few days after the operation, apparently from the swelling of the parts as well as the rest in bed, the child could retain her urine and void it when the necessity arose, but gradually this power became lost, and matters fell back into their old condition.

On 13th September the anterior surface of the urethra was very extensively separated from the pubes in front, and the orifice was narrowed by excising a portion of the tube. The raw surface covering the pubes was closed over by lateral flaps. Catgut sutures were used.

At first the condition of matters seemed to be much improved, but as the swelling fell down the incontinence returned. When dismissed (21st September) she could retain a little urine till she wished to relieve herself.

She now (10th October) distinctly states that she can "keep her water" for a short time when moving about, and her mother is of opinion that her clothes are not nearly so soaked as they used to be, and that the child can pass more water at a time than she did formerly.

This congenital defect, by no means a common one, was not associated with any other malformation of the genito-uninary organs, and is worthy of being placed on record as a cause of incontinence of urine in females.

The pubic bones were firmly united, and the girl was plump and well nourished. Menstruation has not yet occurred.

NOTES FROM VIENNA.

CONTRIBUTION TO THE ÆTIOLOGY OF ACUTE ENDOCARDITIS. —By Dr. A. Weichselbaum, Prosector in Rudolf Spital, and Teacher of Pathological Anatomy in Vienna.

From a report in the *Allgemeine Wiener Med. Zeitung*, of 22nd September, I learn that Orth has made a contribution to the Pathological Society in Strassburg on the ætiology of acute endocarditis. I have of late been employed in the same investigations, but have not made my results public, owing to the small number of cases I have observed. I deem it advisable now to say a few words on the subject, reserving a full discussion for a later time.

Endocarditis is divided into acute and chronic; the latter again into ulcerative (diphtheroid) and verrucous (rheumatoid) varieties.

In regard to the two latter forms, it has long been known that micro-organisms occur in ulcerative endocarditis; these have, indeed, been considered to be the exciting cause of the disease. In regard to the verrucous variety, Klebs,* and later Köster†, have asserted that they have found micro-parasites, while only recently Ziegler‡ and Nauwerk, in one case of verrucous endocarditis, reported that they had discovered colonies of micrococci on the valves of the heart and in the blood-vessels. On the other hand, other observers, as Orth,§ have most positively declared that they have never discovered micro-organisms in this variety. Thus, the possibility is raised whether there are cases of acute endocarditis in which parasites do not occur.

Returning to the ulcerative variety, it is noteworthy that although the theory of a parasitic origin is almost universally adopted, yet owing to the scarcity of cultivation experiments, it is not decided to what species the parasites belong.

During last winter I had opportunity of examining three cases of ulcerative and one case of verrucous endocarditis.

A. Ulcerative (Diphtheroid) Endocarditis.

CASE I. A girl, aged 17, was admitted on 24th December, 1884, to the wards of Herr Mader. She asserted that a year previously she had suffered from acute rheumatism. Four months ago, palpitation and shortness of breath arose. Eight days ago, acute rheumatism again appeared. On examination acute rheumatism of the tricuspid and aortic valves was observed. The urine contained albumen and tube-casts. On 31st December swelling of the spleen began. On 9th January, pericarditis, and on 20th January, death. High temperature had continued up till death.

On section there was found old endocarditis of the mitral and aortic valves, ulcerative endocarditis of the left cusp of the aortic valve, recent pericarditis, acute swelling of the spleen, cloudy swelling of the liver, parenchymatous nephritis.

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* *Archiv f. Exper. Pathol.*, iv and ix Bd.

† Virchow's *Archiv*, lxxii Band.

‡ *Lehrbuch der Path. Anat.* 2 Aufl.

§ *Lebrbuch der Spez. Anat.*

An hour after death, the vegetations of the left cusp of the aortic valve, the pericardial effusion, the pulp of the spleen, and the urine were treated with Agar-Agar solution. In the urine there appeared streptococcus pyogenes. In the other pathological products a quantity of staphylococcus aureus, albus, and streptococcus pyogenes.

The microscopic examination of the vegetation on the left cusp of the aortic valve showed multitudes of cocci in larger and smaller groups, occasionally in short or garlandlike rows.

Case II. A girl, aged 21, was admitted on 13th January to the wards of Herr Kiemann, having suffered for five days from acute rheumatism of the joints. Previously she had been healthy. On examination acute rheumatism of the right knee and high fever were present. On the 19th January rigors appeared, and over the mitral valve a murmur preceding the first sound of the heart. On 22nd January pleuritis arose. On 28th January, rigors, swelling of the spleen, pain, and gurgling in the ileo-cæcal region. Diarrhœa, dulness of sensorium, causing suspicion of typhus fever. In a quantity of fluid, withdrawn from the spleen by means of a Pravaz syringe, and treated with Agar-Agar solution, there appeared the streptococcus pyogenes. Thus, typhus was excluded and the diagnosis reverted to endocarditis ulcerosa. On 23rd February patient died, the temperature having remained at 37°-40° C.

On section there was found endocarditis ulcerosa of the lateral flap of the mitral valve, the other flaps being intact. Increase in size of the left lung, brown induration of both lungs. In the enlarged spleen several yellow infarctions, cloudy swelling of liver. Parenchymatous inflammation of kidney.

Half an hour after death, the mitral vegetations, the brown induration of the lungs, the pulp of the spleen, the kidneys, and urine, were treated with Agar-Agar solution. There arose in the vegetations of the heart, and in the urine so treated, streptococcus pyogenes. Negative results in the other products were due probably to the fact that only one preparation of each was made.

In the cover-glass preparations of the vegetations of the mitral valve were a few cocci; in the microscopic specimens numerous cocci were seen.

Case III. A girl, aged 25, was admitted on 1st September to the wards of Herr Kiemann. For several years she had suffered from palpitation and difficulty of breathing. Five months previously she was seized suddenly with right sided hemiplegia; a few days before admission with left sided hemiplegia. On examination endocarditis of the mitral valve was detected. Temperature remained between 37°-40° C. Death occurred on 12th September.

On section there was found:—Old endocarditis (thickening of the apices of the cusps, and of the chordæ tendineæ) of the mitral valve, diphtheroid endocarditis of the apices of the cusps and of the left auricle, myocarditis, embolism of the arteries of the Sylvian fossæ, softening of the cerebrum, large soft infarction of spleen, and small infarction of the kidneys.

In the cover-glass preparations of the vegetations of the mitral valve were found numerous groups of cocci in small and large masses. Treated with Agar-Agar solution there appeared staphylococcus aureus.

B. Verrucous Endocarditis.

On 17th February a female aged 28 was admitted to the wards of Herr Hein, suffering from acute rheumatism of ankles and wrist joints. Two years previously she had suffered from a similar affection.

On examination a systolic murmur of the mitral was observed. Temperature 38·7°-39° C. On 21st February pericardial friction was noticed. On 26th February pleuritic exudation of left side appeared. On 12th March death.

On Section:—In the joints, to the naked eye no changes were observable. In the left pleura was a serous exudation, and small quantity of fibrin. Left lung increased in size. Old pericardial exudation with a quantity of firm fibrin. On the aortic valve minute firm grey vegetations. The apex of the mitral flaps slightly enlarged and covered with minute vegetations. Spleen slightly enlarged, and red in colour, nutmeg liver, kidneys with fatty degeneration.

Post-mortem a few hours after death. The vegetations on the mitral and aortic valves, the pericardial exudation, and the synovia of the ankle and wrist were treated with Agar-Agar solution. In the vegetations on the valves there arose a formation which, in morphological structure and in manner of growth, simulated streptococcus pyogenes. The synovial fluid treated with the same solution showed a few granules.

In the cover-glass preparations of the valvular vegetations, and in the microscopic specimens, were seen a few cocci.

In regard to my experiments on animals their number is small. I have experimented, however, with the staphylococcus aureus, albus, and streptococcus of the first case. I knew previously that mere injection of cultivations of these micro-organisms was not capable of exciting endocarditis. Nor did endocarditis arise from intravenous injections of those cultivations which I had specially prepared from my cases of endocarditis. This did not surprise me, since in similar circumstances acute osteomyelitis does not arise from injections of staphylococcus aureus, but only when a small subcutaneous lesion of the bone has previously been made. In my later experiments on rabbits I first injured the valve. According to the method of Rosenbach, a heated probe is passed through the carotid artery, and the flap of the valve is pierced. The following day one of the above named fluids was injected, causing severe endocarditis of the valves and other parts of the endocardium. This completely agreed anatomically and morphologically with the diphtheritic formations on the human endocardium. A difference in the results of the above named cultivations was noticeable, in that, after incorporation of the staphylococcus aureus, albus, and streptococcus, much more numerous metastatic lesions arose than after injection of streptococcus alone. In the first case the secondary appearances have a strong tendency to the formation of pus.

I need hardly add that in the diseased products on the endocardium and in the secondary lesions, the injected cocci could be detected microscopically.

From the reports in the *Allgemeine Wiener Medizinische Zeitung*, I infer that Wyssokowitsch, who worked under Orth's direction, has had opportunity of examining one case of ulcerative endocarditis, and in it found the staphylococcus. On the other hand he has not observed the micro-organism in the cases of verrucous endocarditis, which he met with. Consequently Orth assumes that certain cases of acute endocarditis are not of mycotic origin. Wyssokowitsch has made numerous experiments on rabbits with results similar to my own. Orth concludes from these, that in rabbits a typical endocarditis mycotica, with all its results can be produced experimentally in consequence of injection of a particular organism (staphylococcus aureus and streptococcus pyogenes), as Wyssokowitsch, in examining the diseased valves, always found the cocci close to the surface, he concluded that they were derived from the stream of blood passing by, and not from the arteries of the valves themselves. According to this observer there could be no question of embolic origin of endocarditis, as Köster has asserted.

Very interesting is the observation that other pathogenic organisms, such as the micrococcus tetragonus, the pneumonia coccus of Friedländer, and a septic bacillus, have not power to produce endocarditis. That consequently only in a very few organisms does the power of originating this disease reside. Wyssokowitsch also confirms the observation of Rosenbach that simple injury to the valve, as by an aseptic, perfectly clean sound, can produce neither inflammation nor thrombosis.

Regarding diphtheroid endocarditis in the human subject, Orth supposes that there are several varieties which differ in ætiology, in the changes they produce on the valves, and also in their course, and in the character of their metastatic processes.

Comparing my investigations with the observations and conclusions of Orth, they agree, both in mycologic and experimental regard, with the latter. In the three cases of endocarditis ulcerosa I found once the staphylococcus aureus as exciter of the disease, on another occasion I observed the streptococcus pyogenes, and a third time a combination of staphylococcus aureus, albus, and streptococcus pyogenes. There are, therefore, as Orth supposed, in diphtheroid endocarditis, ætiologically different forms. It is also noteworthy that among the micro-organisms discovered by me the streptococcus pyogenes appeared the same organism by means of which Wyssokowitsch produced endocarditis in rabbits.

It is further very noteworthy that the micro-organisms observed in diphtheroid endocarditis are such, that they occur in the various forms of acute suppuration, and in their results (phlegmonous, and pyæmic processes) so that this disease is ætiologically on the same platform with these processes. It will not surprise us, therefore, to see in consequence of phlegmonous or pyæmic processes, an ulcerative endocarditis arise. Both are excited by the same agent.

My experiments on animals likewise agree with those of Wyssokowitsch. They teach that diphtheroid endocarditis may be produced in rabbits by intravenous injection of streptococcus pyogenes and staphylococcus aureus and albus, provided only that previously a lesion of the valves has been occasioned. Such injury to the valve by itself is not capable of exciting the disease.

In reference to the verrucous variety I have arrived at a new result, as I was able to cultivate a fungus in this case, one indeed which agreed with the streptococcus pyogenes.

Verrucoid endocarditis, as a rule, runs a less rapid course than the ulcerative variety. It is therefore seldomer seen *post-mortem* in the early stages. We know from many other parasitic processes that at their acme the parasites perish.

Our endeavours therefore to prove their existence must be vain. The same applies to endocarditis verrucosa. If we are examining a late stage of the disease no positive conclusion as to its parasitic nature can be arrived at. My observations go to confirm this. The case having reached a late stage, the number of cocci on the diseased valves had probably commenced to decrease, causing the growth of the cultivation in the first generation to be poor. Further, for these reasons the exudation resulting from the co-existent pericarditis remained sterile, though it undoubtedly arose from the same source ætiologically as the endocarditis. In contradistinction to this, the cultivation experiments with the pericardial exudation, being fresh, were crowned with success. The poor results arising from the experiments with the synovia of the ankle joint are to be traced to the same cause.

It cannot be denied that many already known facts favour the view of a parasitic nature of verrucoid endocarditis. Firstly, there are many observations to prove the occurrence of organisms in this form of endocarditis. Secondly, it generally arises from disease whose mycotic nature is undoubted or very probable. We may see verrucoid endocarditis not only in acute rheumatism of the joints, but also occasionally in the acute exanthemata as pyæmia, typhus, &c. Only recently Kundrat has demonstrated verrucoid endocarditis in a case of tuberculosis, in the products of which tubercular bacilli were found.

In conclusion, the question whether acute verrucoid endocarditis always is a mycotic disease can neither be positively or negatively answered. We must for this have a much greater number of experimental observations. On the other hand, the parasitic nature of ulcerative endocarditis appears both by experiment and by cultivation observations to be undoubted.

NOTES FROM BERLIN.

A NEW AND TRUSTWORTHY SIGN OF PREGNANCY.—By Dr. P. Compes, Freiburg.

In the *Prager Medicinische Wochenschrift*, No. 26, 1884, Dr. Reinl, Franzensbad, discusses a new and very trustworthy sign of pregnancy. This consists in a state of great softness and compressibility of the lower segments of the uterus. It is most marked towards the centre of this area, the lateral aspects and the neck forming a striking contrast owing to their hardness and rigidity. In some cases it is so marked that the examiner is almost forced to believe that he holds between his fingers tissue as thin as parchment, or that an entire separation has taken place between the body and neck of the uterus.

Reinl quotes six cases observed by him in this clinic. Further investigation in a considerable number of pregnant women fully confirms his original report. We therefore take the liberty of directing the attention of our fellow-workers to the condition present. It would appear that the subject has received less attention than it deserves, the reason being that rectal examination in combination with abdominal palpation is not as a rule carried out.

We will in a few words indicate the manner of making the examination, and then state what seems to be the value of the discovery.

The index finger of the right or left hand is introduced into the rectum. The thumb of the same hand is inserted into the vagina and allowed to rest on the vaginal portion of the neck of the uterus. The index finger now endeavours to pass through the sphincter ani tertius muscle, traversing in so doing the sacro-uterine ligaments. These mark the division between the cervix and lower segment of the uterus. Should the finger encounter any resistance owing to lateral situation of the opening of the muscle a small quantity of warm water injected into the rectum will readily remove it. The disengaged hand is now to be pressed steadily and firmly downwards immediately above the symphysis pubis, the finger in the rectum being pressed upwards to meet it. It will then be enabled to examine the cervix, the lower segment of the uterus, both centrally and laterally, and finally the upper extremity of that organ.

In what respect, we may now ask, are we justified in regarding this condition as a sign of pregnancy ?

In all stages of pregnancy do we find this state of softness and compressibility of the uterus. In one case indeed as early as the seventh week. A sign of this character must be of the greatest practical value. It is well known that at the commencement of pregnancy many of the signs are awanting which enable us to assert positively that pregnancy is present. It is to be noted, however, that in many pathological conditions the uterus does not exhibit the state of compressibility. Numerous examinations made on parturient women suffering from every variety of disease having failed to reveal its presence.

In regard to causation, this condition is brought about by the fact that the walls of the lower segment are thinner than any other part of the organ. The pregnant state also renders the uterine muscular fibres soft and succulent. Further, the elastic nature of the upper portion of the uterus permits of the uterine contents being pressed into this area.

This sign of pregnancy is a positive one. Where it is present pregnancy may be declared to be present. We must, however, first exclude the presence of retroversion of the uterus. This condition may simulate the former but it is not so well marked. In one case of pregnancy it was not observed, owing probably to some pathological condition present.

In conclusion we must refer to the observations of Martin and Horwitz. These investigators noticed that in pregnant women there is a condition of softness and compressibility of the lower segment of the uterus existing contemporaneously with hypertrophic enlargement of the cervix. In some cases the softness is so great as to simulate an independent tumour of the neck of the uterus. This confusion is favoured by the large size of the neck, causing it to be mistaken for the entire uterus. The operation of laparotomy has been performed to remove the condition. Both authors have erred in regarding as pathological what is a purely physiological condition.—*Berliner Klinische Wochenschrift.*

MEDICAL ITEMS.

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

Huchard : Therapeutic Uses of Antipyrine.—(*Rev. Mens. des Mal. de l' Enf.*, March.) Before the Société de Thérapeutique, at its séance of 11th February, 1885, the author made the concluding statements concerning his investigations with antipyrine. Upon patients suffering with the fever peculiar to phthisical subjects, which had proved quite rebellious to other antipyretics, sulphate of quinine included, this substance was found to have a decided effect, the temperature being lowered in a progressive manner, without any accompanying or subsequent accident, and remaining thus lowered from six to twelve hours. In addition to this, it was found that after the first few doses the desired effect was obtained by smaller quantities of the substance ; that is, instead of four to six grammes, two to three grammes were found to be sufficient. It was also employed in a severe case of infectious pneumonia, with the result of promptly reducing the temperature. The following conclusions are enunciated by Huchard:—(1.) Antipyrine constitutes a powerful and certain means of reducing temperature in febrile conditions (mention being made of typhoid fever, pulmonary phthisis, pneumonia, pleurisy, acute articular rheumatism, cerebral rheumatism, angiocholitis, erysipelas, diphtheria, puerperal fever, scarlatina, abscess, phlegmon, &c.); it alleviates the symptoms which are under the influence of the fever, namely, the acceleration of the pulse and respiration, dryness of the mouth, &c.; but it appears to have no direct action upon the respiration and circulation. (2.) Antipyrine is an antipyretic and not an anti-periodic; hence its inefficiency in preventing the paroxysms of intermittent fever. (3.) Its use exposes one only to mild and inconstant accidents, such as sweating, pharyngeal constriction, occasional nausea and vomiting, and rarely an exanthem resembling that of rubeola or scarlatina. (4.) Many cases have demonstrated that it is the only efficient agent for reducing the fever of tuberculosis; in doses of two grammes, administered when the fever is present in the evening, the result will be a reduction of temperature of half a degree (C.) within half an hour, sometimes within quarter of an hour. The temperature continues falling, and within an hour and a half or two hours the normal will be reached; an hour or two later, it will, in some cases, be necessary to give another dose of one or two grammes; in phthisical patients, however, it is well to begin with doses of from two to four grammes, and watch the effect, lest the temperature should become sub-normal from its use. (5.) The antithermic effect is usually maintained from six to nine hours, and may possibly be felt for several days; the secondary rise of temperature (after its use) occurs gradually, not brusquely, as after the use of kairine, nor with a precedent chill, as occurs after the use of kairine. (6.) Antipyrine is eliminated by the urine, and is discoverable in it from two to four hours after its administration; the test is a few drops of solution of perchloride of iron, which, poured into the urine containing antipyrine, produce a characteristic red colour. (7.) In typhoid fever, the drug should be given in doses of five to six grammes daily, two grammes being given twice with an intermission of an hour, the remaining one or two grammes being given after an interval of another hour; this will result in a reduction of temperature of from four-tenths to two degrees during the first hour, the declension continuing at the same rate for seven or eight hours; sometimes, at the fifth or sixth hour, the temperature will begin to ascend again, following its regular course. (8.) The large doses of six to eight grammes, which have been advised by some authors in typhoid fever, are not approved by the author, as in many recorded cases decided hypothermia has resulted.—*Archives of Pediatrics.* 15th August, 1885.

The Bacilli of Syphilis.—At the recent Kongress für Innere Medicin, held at Wiesbaden, Lustgarten, the clinical assistant of Kaposi described a new microphyte which, by the aid of a novel process of colouring, he had constantly found in the primary, secondary, and tertiary lesions of syphilis, and which he regards as the cause of that disease. The bacilli are short, straight, or curved rods, with irregular, undulating, and slightly notched contours, of a deep blue colour, and contain from two to four spores. They are never free, but are invariably included in wandering cells, in groups of from two to nine. The cells themselves are rarely found at the centre of the infiltration, but exist in pretty large numbers at its edges, and in the adjacent apparently healthy tissues. Lustgarten has also demonstrated the presence of these bacilli in the spinous cells of the rete Malpighii in papular eruptions, through which he explains the clinical fact that moist papules become contagious when deprived of their epithelial investment. Full directions for staining are given.—*Medical News.* 2nd May, 1885.—A. K. C.

Pathogenesis of Small Cysts of the Epididymis.—Dr. Ch. Monod, in a paper read at the recent French Congress of Surgery, considers that the origin of small cysts in the epididymis is in relation :—1. With the extent of the sclerosis of which the testicle is the location in men of ages ranging from fifty to sixty, and beyond. 2. This sclerosis, which is chiefly peritubular, in some regions results in complete obliteration of the tubules of the epididymis, as a result of which there is varicose dilatation behind the constricted portion of the tubule. 3. The formation of the cystic cavity results from the development of these ampullar dilatations. 4. Cystic dilatations are either multiple or disseminated throughout the whole thickness of the head of the epididymis, or less numerous, forming isolated tumours, and easily detached from the subjacent tissue of the epididymis. 5. The process by which they are formed is analogous to that by which cysts are developed in the kidney during the course of interstitial nephritis or in the parotid gland subsequent to the ligation of Steno's duct.—*Medical News.* A. K. C.

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GLASGOW MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

CASE OF LABOUR ATTENDED WITH FACE PRESENTATION, RUPTURE OF THE UTERUS, AND DEATH OF MOTHER AND CHILD; THE LATTER DEFORMED BY SPASTIC (?) RIGIDITY AND MALFORMATION.

By ROBERT KIRK, M.D., Partick.

(Read before the Obstetrical Society of Glasgow, 11th November, 1885.)

Mr. President and Gentlemen,—The following case occurred in April last, in connection with the midwifery department of the Western Infirmary. I was summoned to it one morning about 9 o'clock. It appeared that the patient, who was in very poor circumstances, had been for many years a habitual drunkard. She was about 36 years of age, the mother of eight children, and her previous confinements were said to have been so easy, though often tedious, that she had generally not required any skilled assistance, not even that of a professional midwife. In the present instance, however, after labour had lasted two days without causing anxiety, symptoms of exhaustion of an alarming kind had supervened about 6 o'clock on the morning in question, when a midwife and student were sent for, who both first saw the patient about 8 a.m. The latter, recognising the gravity of the case and diagnosing an unusual presentation, at once had recourse to my assistance. I found the patient, a pale anæmic woman, in a state of great exhaustion, bordering on collapse; pulse weak and very rapid; breathing laboured and hurried; anxious expression of countenance, and skin bathed in a cold perspiration. There were considerable abdominal pain and tenderness, accompanied from time to time with what seemed expulsive efforts. Her condition appeared to indicate more than mere exhaustion, probably internal hæmorrhage or rupture of the uterus. I must confess it was rather the former that I suspected, although perhaps the absence of actual syncope along with such symptoms of collapse rather pointed to the latter. The history, no doubt, would have made the diagnosis much easier had any one been in attendance before 6 A.M., but in the circumstances it was but obscure, and the patient herself could barely answer questions in monosyllables. The face of the child was found to be presenting near the perinæum, the chin fortunately in front, and a little to the left of the symphysis. There was every reason to believe that it was already dead, and it was obviously out of the question to disturb the mother, who was already in the ordinary obstetrical position, for the sake of auscultating the abdomen. Accordingly, after catheterisation of the bladder, delivery was at once attempted with the forceps, and fortunately proved easy of accomplishment. The placenta was shortly afterwards expelled without any difficulty, there was little hæmorrhage externally, and the uterus contracted tolerably well. The patient appeared to rally a little, and as, on digital examination, nothing abnormal was discovered *per vaginam*, some hopes were entertained that her condition might prove to be one of extreme exhaustion merely, and from which she might ultimately recover. An opium pill was administered, followed throughout the day by small doses of stimulants, but the patient gradually sank, and expired the same evening. I heard of her death an hour or two after the event, and, anxious to ascertain if there had been rupture of the uterus, of which I now felt certain, I immediately proceeded to the house. The body was stretched on the back, and dressed in graveclothes, but permission was obtained, though with some reluctance, to make a vaginal examination. Passing two fingers into the vagina, and pressing them up as far as possible, I came upon a loop of intestine; this I dragged outside the vulva and inspected, so as to put the matter beyond all doubt. Before pulling out this loop, I attempted to define the rim of the os, but could only do so very imperfectly. I could only identify it at certain points, but, nevertheless, could not say that in the intervals between those points any breach of continuity could be detected. It seemed, as far as I could feel it, to be everywhere soft, and apparently not the seat of malignant disease. I could not proceed further, for I was now asked to desist, and it would have been difficult to pass the hand into the uterus without changing the position of the body; but enough had been done to demonstrate that the patient had succumbed to a rupture of the body of the uterus involving the peritoneum.

I must not omit to mention that a dose of ergot had been administered to the patient about 8 A.M., but it had produced no apparent effect, and I think it may be regarded as a certainty that the fatal accident took place about 6 A.M., and before either the midwife or student arrived. When we consider the charges sometimes brought against practitioners in such cases, this may be worth noting. The rupture, too, would probably have been unavoidable under any circumstances; it is very doubtful whether it would have been prevented had the forceps been used at an earlier period, and before its actual occurrence.

Leaving the mother, however, let me now request your attention to the child, the condition of which at birth will, I think, be found to furnish material for curious and interesting study. It was a fully developed male, and, as had been anticipated, was quite dead when born, and the entire body was bent and twisted into a very unusual attitude. What was still more singular, however, was the fact that the muscles were nearly everywhere rigid, so that the child was almost fixed in one unchangeable posture. This rigidity was most marked in the trunk and the right lower extremity; the neck, arms, and left lower extremity permitted a certain amount of movement. A few hours after its birth I immersed the body in spirit, and on taking it out about three weeks ago to show to some medical friends, it was found to be still very rigid. It was then kept in a cloth soaked in spirit, and covered externally with gutta percha tissue, and a fortnight afterwards I observed that the rigidity was somewhat diminishing; but you will still find it tolerably well marked in certain parts, and see distinctly the original appearance and posture of the trunk and extremities, of which the following is a brief description. The presenting part, the face, was very much bruised, especially the right side of it, and this is still very manifest. The head was large and dolicho-cephalic, and in a state of extreme extension; but it could be flexed with a little force. The upper extremities admitted of considerable movement, at least at the shoulder and elbow joints; the hands, however, were much everted at the wrists, and could not be straightened; even yet it is not possible with a moderate degree of force to bring them into a line with the forearm; the fingers were fully extended. The spine was bent both laterally and in an antero-posterior direction, presenting a convexity backwards and to the left; the lateral curvature was most acute in the lumbar region. In addition to this, the entire trunk had been crushed laterally, and had been subjected to a slight rotatory movement, the buttocks having been turned forwards and to the left, and the upper part of the trunk in an opposite direction. The iliac spine had thus been carried upwards towards the ribs on the right side, and was rigidly fixed in this position. This condition of the trunk is still as marked as at first, but it can now be altered somewhat by using some degree of force, as the rigidity of the muscles has considerably diminished. Coming now to the lower extremities, the left leg was bent forwards instead of backwards at the knee, so that the sole of the foot rested on the abdomen, while the knee pointed to the left, and somewhat backwards. This leg was not very rigid, and by using a little force the entire limb could be extended, and the abnormal flexion at the knee partly rectified with a tolerable degree of completeness. The right leg was flexed backwards in the normal way, but to an extreme degree, so that the sole of the foot, which was completely extended, was applied firmly against the buttock of the opposite side. It was found impossible to straighten the knee or flex the foot, or separate it more than an inch or two from the buttocks. This rigidity, in which the flexors of the thigh also participated, so that the hip joint could not be extended, is still tolerably well marked.

In searching for an explanation of the state of matters found in this still-born child, I must confess I met with considerable difficulty. I consulted Vrolick's article on Teratology in Todd's *Cyclopædia*, and examined Ahlfeld's extensive series of plates of malformations, although I could not find time to thread my way through the German text of the latter's formidable work. I found, however, a very comprehensive sketch of the subject in Barnes' *Midwifery*, but nevertheless could not rest satisfied with the light which it could be made to throw on the subject. I there learned that cases in which the knee flexed forwards instead of backwards were known to occur, and that in such the patella was generally either deficient or absent, and this was so far satisfactory. This condition might arise from some convulsive movement of the fœtus at a comparatively early period of intra-uterine life producing this form of luxation, with consequent defective development of the structures connected with the the joint. I also found that there might occur, as congenital conditions, anchylosis of one or other sacro-iliac synchondrosis, deficiency of the sacrum, or absence of one or more vertebræ, and these might account for much distortion of the trunk. These points, however, could not be investigated without dissection, which I purposely postponed till I had shown the fœtus to this Society, but which may now be performed if Dr. Coats or Mr. Maylard will undertake it.

But what still remained unexplained was the muscular rigidity, without which, indeed, the state of the parts could not have been produced. To confine our attention to the right lower extremity, it was plain that here was no malformation of bones or joints; there was nothing, as it appeared to me, analogous to clubfoot, which had been months in developing; there was no structural shortening of muscles, but rather a contraction such as might occur in a tetanoid or convulsed state during life. When and how was this caused, and why, more especially, did it persist after death? A few rare cases of ordinary rigor mortis have been recorded in still-born children, but the irregular distribution of the rigidity in this case seemed to exclude this view of it. With the view of throwing light on this point, I proceeded to search for cases in which rigidity had been observed and recorded in still-born children at the moment of birth. My search may not have been a sufficiently extensive one, but hitherto I have found only two, both of which were considered singular at the time of their occurrence. The first is a case recorded by Dr. Gibb in the *Lancet* for 13th November, 1858. In this case a pregnant woman, three months after having received a blow, was delivered of a still-born child, the left upper and lower extremities of which were so rigidly flexed that it was found impossible to straighten them without breaking the tendons, and, in which, on *post-mortem* examination, a clot was found in the brain on the opposite side. The second will be found recorded and figured at p. 117 of the *Iconographie Pathologique de l'œuf humain fécondé* of Martin St. Ange.

A pregnant woman, 32 years of age, experienced, as the result of strong mental emotion, violent and disorderly movements of the fœtus in utero, followed shortly afterwards by their complete and final cessation. She was then five months pregnant and she was delivered two months afterwards of a still-born child whose thoracic and abdominal muscles, as well as those of the right lower extremity, were rigidly contracted, producing deformity and resisting all attempts to rectify the parts. The author concludes that death ensued from convulsions two months before birth, and that the abnormal posture of the child was assumed at the moment of death, and, as showing that he considered the maintenance of the rigidity for such a length of time a singular phenomenon, he asks:— "How can it have been preserved till the moment of delivery?"

It is evident that the above cases so far correspond with the present that in both there was a *post-mortem* rigidity of an intense and prolonged character. They seem to prompt the question, Is there a kind of *post-mortem* muscular rigidity distinct from the ordinary rigor mortis, or at all events differing from it in certain features? And, further, have any cases analogous to the above occurred in adults? Apparently the last question may be answered in the affirmative. It has been observed in several cases of tetanus from strychnia poisoning that when the patient died during a spasmodic seizure the body sometimes remained fixed in the precise attitude in which death occurred, and the rigor mortis has been merged in this tetanic rigidity, if indeed it can be said in the ordinary sense to have appeared at all. The posture assumed at the moment of death has been known to last for a day or two in these cases. I was curious to ascertain if this tetanic rigidity had been observed to last for a much longer period in any instance, and I found that there was at least one authentic case of the sort, although, perhaps, it was not one in which the actual state of the muscles at death was preserved. When the body of Cook, who was poisoned by Palmer, was exhumed, it was found still rigid after two months of interment. It is obvious that had it not been for medico-legal inquiry we would never have been in possession of this fact, and no doubt the same thing may have happened in other cases. The case proves that the maintenance of this form of rigidity is to a certain extent independent of means taken to prevent decomposition of the body, although, perhaps, such means may prolong it still further. I have not found any statement as to whether the preservation of a body in spirit would prolong the duration of the rigor mortis, but there seems reason to believe that it would do so. On referring to traumatic and idiopathic tetanus I could not find any statement as to the duration of *post-mortem* rigidity; but here, too, the posture in which death overtakes the patient is sometimes preserved for some time afterwards.

In view of these facts I am disposed to conclude that the rigidity of certain parts of this fœtus was, in the first instance, an *ante-mortem* phenomenon, and that it continued after death as in the instances above recorded. Hence, what we have to explain is a vital action just as if the child had been born alive in the same state of rigidity. It is clear that this full-grown child was killed during actual labour, and there is hardly any reason to doubt that the rigidity supervened shortly before death. This being so, I would explain its occurrence by reference to a class of cases occurring in the living, and which have been described by Dr. Little under the title of "Spastic rigidity in the new-born." A complete account of this condition will be found in Dr. Little's work on deformities, and it was only after reading it that I fancied I had got some insight into the present case. Whether I am right or wrong in placing this case in the same category with those which Dr. Little has described in *living* children, at all events no apology can be necessary for calling attention to the important subject dealt with by Dr. Little. This condition consists essentially of a rigidly contracted state of some, or it may be all, the muscles of the body, producing much deformity, and interfering seriously with locomotion, speech, and every action of the voluntary muscles; besides being accompanied in severe cases with great impairment of the mental faculties, amounting to imbecility or even idiocy. It may be observed immediately after birth in some cases, but in others it does not come on, or is not detected, for some days, or even for a longer period afterwards. In a communication to the Obstetrical Society of London, which will be found in the *Transactions* for 1862, p. 294, Dr. Little has given us his latest facts and views on this subject, especially with regard to the etiology of the affection. He there gives an abstract of 63 cases, but states that he has seen more than 200, and he has almost invariably found it follow premature birth, or various forms of difficult and abnormal parturition. He believes that it originates at the moment of birth, and that by far the most frequent exciting cause is asphyxia neonatorum, producing depraved and altered blood, with consequent capillary apoplexies and blood extravasations in the brain and spinal cord. Some cases may be due to mechanical injury of the head and neck; but these he had found to constitute but a small part of the whole. Prematurely born children he finds specially prone to suffer during the change from placental to pulmonary respiration. He instances autopsies by Hecker and Weber, and one of his own to show that such extravasations of blood are often found in children still-born from asphyxia.

It was curious to observe that in the discussion which followed the reading of this paper Drs. Barnes, West, and Tyler Smith stated that they had not met with such cases as those described by Dr. Little, and the only notice which the matter has yet received in any systematic work on midwifery, as far as I am aware, is confined to a single sentence in Barnes'. The belief of obstetricians with regard to asphyxia neonatorum seems to be that it either kills outright or leaves the child unharmed afterwards, and is never followed by any serious sequelæ. A moment's consideration must convince any one that if this view were correct it would be an extraordinary and unparalleled circumstance. Such cases as those observed by Dr. Little may be rare; but their extreme gravity makes it important that they should be recognised and understood when they do occur. And it may be doubted whether such cases are so rare as the experience of the above authorities might lead us to suppose. I believe I have seen two cases of the kind, one of which at least was a well marked and unequivocal one, and deserves to be recorded. It happened in my own hands, nearly fifteen years ago, but I still distinctly remember the circumstances and the chief features of the case. The mother was a healthy primipara, under thirty years of age. The pelvis was capacious, the labour was much easier than in the majority of primiparæ, and my surprise may be imagined when the child, a full grown male, refused either to breathe or cry. The cord was beating forcibly, and the child had not the appearance of being asphyxiated. But I was above all struck with the fact that the whole body was rigid; the trunk was absolutely immovable, and the knees were so rigidly flexed against the abdomen that attempts to straighten the legs proved futile. There was nothing for it but to have recourse to the ordinary means of resuscitation, and the child "came round;" but the rigidity remained, and it never acquired much use of any of its limbs, all the motions of which were extremely circumscribed; it never could walk nor speak, and was quite idiotic. The parents were in good circumstances, and some eminent consultants were called in, but no one could explain the cause of the child's state, which consequently was ascribed to some mysterious fault of development. With the help of the light which Dr. Little has shed on this subject, I have now no difficulty in coming to the conclusion that it was the sequela of asphyxia, this again being the consequence of premature separation of the placenta. The subsequent history of this patient showed that she was prone to this mishap. In another pregnancy she was threatened with hæmorrhage; this was arrested, but after delivery it was found that a clot had formed between a part of the placenta and the uterine wall; on another occasion she had a still-born child from the same cause, namely, premature separation of the placenta. It is obvious how important it is for the medical attendant to be able to decide that such a calamity as idiocy has resulted from an accident of labour, and thus save a family from the stigma of a supposed hereditary tendency. I feel strongly that these possible sequelæ of asphyxia should occupy a more prominent place than has yet been assigned them in text-books of midwifery.

Can there now be a doubt that the *post-mortem* rigidity in this fœtus is of the same nature as the spastic rigidity which Dr. Little has described in the living who have barely escaped from the ordeal which has here proved fatal? When we see a cadaver in the posture of opisthotonos, we as certainly diagnose tetanus as if we had seen the case before death. It is curious to find that there is also a striking resemblance during life between the subjects of spastic rigidity and cases of tetanus. Dr. Little more than once refers to this, and in one passage says "a great susceptibility to impressions, almost tetanic, is a common accompaniment of spastic rigidity from asphyxia neonatorum." As it is convenient, for grouping together cases of a particular kind, to have a common designation by which to identify them, I would propose, if my conclusions should meet with acceptance, to call the present case and also those of Dr. Gibb and Martin St. Ange cases of "spastic rigidity in the still-born."

We may finally ask, Has there been any cause in operation in addition to asphyxia, or possibly, though very improbably, apart from it to produce this form of rigidity in the present instance? Although Dr. Little attributes an all-important rôle to central lesions, the result of asphyxia as the prime cause in these cases, he recognises the possibility of such effects resulting from any cause which can be proved to produce them at any subsequent period of life. If so, has the rigidity in this case been due, in part at least, to the irritation of severe pressure on the muscles and peripheral nerves? It is obvious that the trunk has become rigidly fixed in a posture which it was compelled to assume by the pressure of the uterus and the pelvic bones. Less potent peripheral causes in extra-uterine life have been known to produce spastic rigidity of muscles, and we may suppose that they have not been without their influence in the present case.

There is only one remaining point in this case which I would like to notice: I refer to the drunkenness of the mother. Leaving aside the possible effects on the offspring of alcoholism in the father as a more obscure subject, the question of the influence of drunkenness in the mother on gestation, parturition, and the health and development of the fœtus would form an important subject for investigation and discussion. For my own part, I am convinced that indulgence in alcohol beyond the most moderate extent is frequently in the last degree disastrous to a pregnant woman and her progeny. I have now seen cases of fatal rupture, fatal inversion of the uterus, and fatal *post-partum* hæmorrhage in habitually drunken women. I believe there is a marked tendency to hæmorrhage more especially in such subjects. Obstetric authors, to my surprise, are almost totally silent on this matter. With regard to the child few will be disposed to deny the influence of alcoholism in producing such forms of deformity as those we have been considering to-night. But there is one effect of alcohol on the child which I have observed so often that I regard it as altogether undeniable, and to which I would specially call the attention of the Society, as I have not seen it alluded to anywhere. I have noticed that the children of notoriously drunken mothers were often born in a remarkably emaciated state, and were sometimes diminutive in every sense. Such children might be tolerably healthy and quite free from any cachectic appearance, but the striking thing about them was, that not only were they small at birth, but they did not grow, and at five years of age might look like children of two or three. I have seen numerous instances of this sort and the amount of race degeneration which takes place in this way is probably considerable.

DEAFNESS IN BRIGHT'S DISEASE.

By J. WALKER DOWNIE, M.B., F.F.P.S.G.,

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Amongst cases of interest, alike to the aural specialist and the general physician, which I have been called upon to treat within the last twelve months, was one of deafness in a patient suffering from Bright's Disease.

I am the more constrained to bring this case before the readers of the *Journal*, as in referring to works specially bearing on diseases of the kidneys, auditory disturbances I find to be all but unnoticed.

On 4th December, 1884, I was requested by a medical friend to see a patient of his. The patient, a warehouseman, aged 27, and married, was suffering from chronic nephritis, and on account of the swelling of his lower extremities had been confind to bed almost constantly during the two previous months. Two days before date he had been seized with sudden deafness, of which the following are the particulars, with subsequent progress.

Before 2nd December his hearing was good. During the night of the 2nd he was prevented from sleeping by a constant and severe pain in the right ear, which, however, did not affect his hearing. To get relief from the pain, patient had a few drops of warmed whisky and laudanum placed in the meatus several times during the night with but slight benefit. In the morning the pain had gone, but he found himself to be completely deaf in the right ear.

It was then I saw him for the first time. On testing his hearing power with watch, the tick of which in normal hearing is audible at 50 inches, I found hearing on left side normal, while on the affected side the tick was not heard even on firm contact. Examination, with aid of speculum, showed nothing abnormal, and with careful use of Eustachian catheter the tympanum was readily inflated, but without improvement in hearing power.

The condition of his ear remained unaltered till the 16th of same month, when there was a slight return of pain in right ear, and his left became similarly painful—"an aching pain deep in the ear"—and on the following morning he found he was equally deaf in both.

With watch, even in contact, he could hear with neither ear. Vibrating tuning fork applied to cranial bones, as also to the teeth, was not heard; but on shouting loudly to him he could make out some words indistinctly. Questions had to be put in writing.

On both sides the meatus and membrana tympani were normal in appearance, and both Eustachian tubes were permeable. He continued to all intents and purposes absolutely deaf till 29th of same month, when he was able to hear a little with the left, and on 31st with the right, and in two days more his hearing was completely restored.

The only reference to this subject which I was able to find worthy of notice is a paper by M. le Docteur Dieulafoy in the *Gazette Hebdomadaire de Médecine et de Chirurgie* for 25th

January, 1878, to which I was directed by a reference in *Neale's Digest* to a note on above paper in the *Medical Times and Gazette* of February of same year.

Dr. Dieulafoy, in his paper, states that he had "observed or collected thirty-seven cases of chronic or acute nephritis, of which number auditory disturbances had been noticed in fifteen;" and in complaining of the dearth of literature on the subject, he thinks that it is "doubtless because these symptoms frequently being of a temporary or partial nature only, disturb the patients much less than some other symptoms, such as those of the eye."

In the article referred to he gives five of his cases in detail; in only two of these, however, does he make mention of a special examination of the ear having been made. In the first of those cases—"the patient had complained for the previous ten or fifteen months of ringing in the ears, sometimes in one, sometimes in the other, and that his hearing failed him at times, obliging him to have conversation repeated"—M. Ladreit de Lacharriere, who made the examination, noted:—

1. "An abnormal hyperæmia at the level of the handle of the malleus of the right ear.

2. "A thickening with depression of the left tympanic membrane, which no longer reflects luminous rays;" and in the second case, where the "hearing in left side is almost entirely lost," the same specialist, on examination, detected the "presence of a rupture of the membrana tympani."

In carefully analysing his 37 cases, Dr. Dieulafoy concluded:—

1. That those auditory disturbances may occur in *all* forms of nephritis, chronic or acute, but least frequently in simple acute.

2. That they may appear at *any* period in the course of the disease.

3. That the lesion, for lack of autopsies in such cases, cannot be determined; but that from reports on examinations (already detailed), "it is a question, possibly, according to the case, of rupture, of abnormal hyperæmia, or of sclerosis of the membrana tympani; possibly we may find passing œdema, low forms of inflammation, or limited hæmorrhages; all forms of lesions analogous to those which are described among the ocular lesions of Bright's disease."

4. That the disturbances of hearing may sometimes prove useful in determining a difficult diagnosis.

The patient whose case I have related was suffering from chronic desquamative nephritis.

At time of onset of deafness he had been under treatment for nephritic affection during the previous two months, and his general condition was improving—swelling diminishing, urine increasing in quantity, albumen, though still abundant, decreasing.

As regards the lesion in such cases I should be inclined to say that the abnormal conditions stated as being present in the two cases quoted do not fully account for the impairment of hearing described; and certainly such lesions could not have produced the absolute degree of deafness present in my case.

As has been said, inspection here gave only negative results concerning the condition of the external and middle ear, so to explain the cause of the deafness I think we must look, almost solely, to the internal ear.

And, first, as to its *seat*. There was here no giddiness at any time, so we can rid ourselves of the consideration of the semi-circular canals being implicated, and place the lesion—be it a passing œdema or some small hæmorrhagic extravasation—as existing in the cochlea. Secondly, as regards the *form* of lesion I am inclined to the latter—limited hæmorrhages—as the deafness was preceded by pain—possibly from increased tension in the small arterioles—the sudden disappearance of which, with immediate loss of hearing, being due to rupture of those minute vessels, and consequent extravasation of their contents.

In cases of deafness occurring during the course of Bright's disease, both the uræmic poison and the syphilitic taint might be factors. Of the former Dr. Roberts says that "uræmic deafness is much less common than amblyopia, and its occurrence is highly exceptional;" and in this case other recognised symptoms of uræmia—sickness, drowsiness, characteristic odour of breath, &c.—were absent. Syphilis can also here be excluded. There were none of the usual signs of hereditary syphilis, and no history of the acquired form; and my friend, who has attended patient and his near relatives for a long series of years, negatives the idea.

In conclusion. As the detection of exudation with or without hæmorrhagic spots in the fundus of the eye demands an examination of the urine, so cases of deafness, of sudden onset and obscure history, in the same way may not be without importance for diagnostic purposes.

THE ADDITIONS AND ALTERATIONS IN THE NEW BRITISH PHARMACOPŒIA.

By JOHN DOUGALL, M.D.,

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(Read before the Southern Medical Society.)

The additions and alterations in the new British Pharmacopœia are so numerous, and the time at our disposal so brief, that my remarks on these must necessarily be in the form of a mere running commentary.

The new medicines and their preparations, and the new preparations of old official medicines number 114; nine of these—acidi chromicum, lacticum, meconicum, oleicum, also alcohol ethylicum, calcii sulphas, cimicifugæ rhizoma, potassii cyanidum, and sodium, are to be used only in their preparations; and an additional seven—argenti et potassii nitras, cupri nitras, glycerinum aluminis, glycerinum tragacanthæ, liquor acidi chromici, liquor sodii ethylatis, oleatum hydrargyri, and zinci sulphocarbolas, have their modes of preparation simply formulated, as they do not form components of other official formulæ. These compounds are obviously all for external use as caustics and local stimulants. The remaining medicines have their doses approximated, the preparations into which they enter, and their pharmaceutical forms—tincture, extract, liquor, &c.—mentioned. The first substance on the list of additions is

Acidum Boricum, from which is **Unguentum Acidi Borici.** It is a mild crystalline inorganic acid, and as all acids delay putrefaction it has gained a reputation as an antiseptic beyond its kindred acids, to their neglect, which I do not think it merits.

Acidum Carbolicum Liquefactum; Unguentum Acidi Carbolici.—This is made by the addition of 10 per cent of water to carbolic acid, forming a reddish-brown oily liquid—a very handy condition in which to keep the acid for use. All who have made up its preparations must have felt the inconvenience and annoyance of working with the crystals. As the pure acid only dissolves in about 21 to 30 per cent of water, any excess of these proportions sinks as an oily fluid. The dose is stated as "1 to 4 minims." I once tried carbolic acid in one grain doses in pill to a male adult with typhoid, but the prostration it seemed to cause prevented me from prescribing it again. Carbolic acid is an excellent external antiseptic, but a nauseous internal medicine. I am pleased to see an ointment of this acid made official. For more than a dozen years such a preparation has been a great favourite with me for hæmorrhoids, trichosis, pruritus pudendi and perinæi, and for ulcers. I use eleven grains of the acid and one grain of benzoic acid to the ounce of lard. The official ointment is about double this strength, contains no benzoic acid, and is made with hard and soft paraffin.

Liquor Acidi Chromici is a powerful, prompt, oxidising caustic, irritant poison, antiseptic, disinfectant, deodorant, and coagulator of albumen.* Crystals of chromic anhydride and of carbolic acid combine with explosion on simple contact, forming picric acid by oxidation of the carbolic by the chromic acid. This substance is chiefly used for hardening pathological specimens. Antiseptic catgut ligatures are also prepared by steeping them in an aqueous solution of carbolic and chromic acids, which is the same as placing them in a solution of picric acid.

Acidum Hydrobromicum Dilutum seems to have medicinal properties similar to the bromides. It is said to be useful in allaying nervous headache, tinnitus aurium, and the effects of alcoholism. Dose—15 to 50 minims.

Acidum Lacticum is a syrupy, liquid, organic acid, with a strong resemblance both in taste and appearance to concentrated phosphoric acid. Being a normal constituent of the gastric juice, it is held by some that weak digestion may result from its deficiency. The dilute acid has been proposed both as a gastric stimulant and gastric sedative. It may be given with pepsine. Some think it useless. It causes the acidity of buttermilk. Dose—½ to 2 fluid drachms.

Acidum Meconicum Liquor Morphinæ Bimeconatis.—In this preparation we have the normal acid, which in nature is combined with the various opium alkaloids, united with the most important one of these—morphina. I have often thought the official preparations of opium too numerous, but this addition, from the legitimate combination of acid and base, seems a proper one. Its narcotic power is about equal to that of tincture of opium. It is said to be the most easily tolerated opiate, and to possess in an eminent degree the sedative power of morphina. Dose—5 to 40 minims. The acid is not used *per se.*

Acidum Oleicum; Oleatum Hydrargyri; Oleatum Zinci; Unguentum Zinci Oleati.—M. Chevreul, a distinguished French chemist, was the first to show that fixed oils and fats are in reality chemical salts, consisting of oleic and other fatty acids united to glycerine as a base. In the manufacture of hard soap, the glycerine of the fat is liberated by soda or protoxide of sodium, which takes its place, and in the same manner several other basic substances, as lead, zinc, and mercury will also combine chemically with the fatty acids to form salts. The official oleates, as ordered to be made, seem to me, however, either mechanical mixtures or oleates of the protoxides of their bases. I cannot see, from the absence of water in their preparation, how they can be oleates of the pure metals, like the oleates of lead and of sodium, both of which are boiled with water while being made. Oleates are much cleaner, more easily applied and absorbed than ointments, for which some are substitutes, but are apt to produce an eruption of the skin unless diluted.

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* "On Chromic Acid in Medicine." By John Dougall, M.D. *Lancet*, 1871.

Acidum Phosphoricum Concentratum is employed for making syrupus ferri phosphatis. Its use is the same as that of the diluted acid, but of course the dose is much less—2-5 minims.

Acidum Salicylicum; Unguentum Acidi Salicylici; Sodii Salicylas; Salicinum.—These salicyls, being non-poisonous, little irritating, free from odour, and preventing fermentation and putrefaction, are largely used, especially the acid, as antiseptics both in surgery and for preserving putrescible and fermentable foods, &c. Internally they are employed as certain antirheumatics and antipyretics, for which they have deservedly acquired a world-wide reputation. Being rapidly absorbed, and as rapidly eliminated, they require to be given in frequent doses—5 to 30 grains every two hours, according to the effects produced. They may cause symptoms similar to those of cinchonism, *i.e.*, tinnitus aurium, vertigo, and headache. The sodium salt, and the acid, in over doses have produced transitory excitement, delirium, with depressed breathing, lowered cardiac action, temperature, blood pressure, and collapse.

Salicin can be taken in large and frequent doses without causing these effects, and its action being tonic rather than depressant, it is usually tolerated by the stomach when the others are rejected.

Aloin.—Is a crystalline substance extracted from aloes by solvents. In doses of $\frac{1}{4}$ grain it is tonic; of 1 to 2 grains, cathartic, cholagogue, and emmenagogue, and has a special tendency to stimulate the pelvic organs. Its action is the same, but fully twice the strength of that of the best aloes. It is said not to produce the nausea that frequently accompanies the operation of the crude drug; and injected subcutaneously it does not cause irritation in a solution of 1 in 25.

Apomorphinæ Hydrochloras.—This interesting substance is obtained by heating morphine or codeine in sealed tubes with hydrochloric acid. A two per cent solution in camphor water is official for subcutaneous injection. It is almost exclusively used in doses of 2 to 8 minims as a certain, prompt, and safe emetic, usually operating in from 5 to 15 minutes, and not causing much subsequent nausea or depression. It is also a valuable expectorant in doses of $\frac{1}{100}$ to $\frac{1}{50}$ grain. Its official solution soon decomposes.

Argenti et Potassii Nitras; or "Mitigated Caustic," and Toughened Nitrate of Silver; or "Toughened Caustic," simply differ from the well known nitrate of silver, in the first acting milder, and the second being less brittle.

Arsenii Iodidum; (AsI_3), Liquor Arsenii et Hydrargyri Iodidi.—The teriodide of arsenium, an orange-red powder, tasteless and odourless, is used in lepra and psoriasis in doses of from $\frac{1}{30}$ to $\frac{1}{8}$ grain, but it is introduced chiefly to make the second arsenical preparation, well known as Donovan's Solution, composed of the three potent metabolics,—iodine, arsenic, and mercury. Each fluid oz. contains about 1 per cent by weight of arsenious iodide, (AsI_3), and of mercuric iodide, (HgI_2). This preparation is given cautiously in doses of 10 to 30 minims in syphilis, lepra, and other chronic skin affections, and is often very effective.

Bismuthi Citras; Bismuthi et Ammonii Citras.—These new preparations are, perhaps, more eligible than the older ones for administering bismuth.

Butyl-chloral Hydras.—This is the new name for croton-chloral hydrate. It is said to be a safer hypnotic than chloral-hydrate, in having a less depressing action on the heart. It has the peculiar power of producing anæsthesia of the "trigeminus" prior to causing sleep. Hence it is prescribed in "tic," facial neuralgia, and other painful affections of the parts supplied by that nerve. The dose is stated at 5 to 15 grains. It is well to begin with 1 or 2 grains every half hour until relief is obtained, but to give no more than 15 grains in any case. An important chemical difference exists between this substance and choral hydrate, viz., it does not yield chloroform when heated with a solution of potash, soda, or lime, as chloral hydrate does. It has been thought that the latter produces sleep from its being partly changed into chloroform by the alkalies of the blood; but this cannot apply to butyl-chloral, which is hypnotic although not yielding chloroform with alkalies.

Caffeina; Caffeinæ Citras.—This is an alkaloid found in tea leaves, coffee seeds, and the seeds of a Brazilian plant; hence its three synonyms—theina, caffeina, guaranina. It is a nervine stimulant, particularly of the brain, causing insomnia, clearness of intellect, rapid flow of ideas, and removal of langour. The pulse and respiration are first accelerated, then depressed, and the temperature rises. It is also slightly laxative and diuretic. Its chief use is as a nervine stimulant and to relieve migraine. Dose of the alkaloid, 1 to 5 grains, best given in pill; of the citrate, 2 to 10 grains.

Calamina Præparata, Unguentum Calaminæ, Zinci Sulphocarbolas. — Prepared calamine is purified native carbonate of zinc. The ointment was formerly much used, and was in the London and Edinburgh pharmacopœiæ as "ceratum calaminæ." I have long used this preparation to indolent and unhealthy sores with much success. The powder may also be applied to the surface of large ulcers and for dusting excoriations. I have a strong suspicion that Holloway's ointment and unguentum calaminæ are near kindred. Zinci sulphocarbolas consists of colourless efflorescent crystals which, dissolved in water, form an excellent astringent and antiseptic lotion.

Calcii Sulphas is introduced for making calx sulphurata. This nauseating salt has the odour of H_2S, and is said to remove glandular swellings, boils, *et hoc genus omne.* I tried it once, but one powder was sufficient for my patient, who obstinately refused to swallow another, and no wonder. Dose, 1-10th to 1 grain. Any quantity I consider is too much.

Liquor Calcii Chloridi.—This preparation is said to stimulate the lymphatic glands, and hence to be useful in scrofulous swellings and chronic skin affections. When well diluted its taste is not unpleasant. Dose, 15 to 50 minims.

Chrysarobinum; Unguentum Chrysarobini.—This consists of the medullary matter of the stem and leaves, dried and powdered, of the andira araroba, and containing, at first, more or less chrysophanic acid, but which increases by oxidation. The acid or "goa powder" is a light brownish-yellow, minutely crystalline, tasteless, odourless powder. The ointment consists of 1 part of the acid to 23 parts of benzoated lard.

This substance is chiefly used as ointment for psoriasis, but also in some vegetable parasitic, and other skin affections. It causes a deep brown stain and slight irritation where it is applied. The stains may be removed by a solution of potash or chlorinated lime. I have ordered it frequently in psoriasis, in conjunction with the internal use of arsenic, with fair results. I always advise the psorai to be first scraped with a blunt knife, then the ointment rubbed well in.

Chrysarobinum has been given internally in doses of 1-6th to ½ a grain; best in pill, but is apt to derange the stomach and bowels.

Cimicifugæ Rhizoma; Extractum Cimicifugæ Liquidum; Tinctura Cimicifugæ.—This herb is also called actææ radix, and black snake root. It is termed cimicifuga from its reputation as a cure for the bite of the cimex or rattlesnake. In full doses it causes giddiness, vomiting, headache, soft pulse, relaxed bowels, diaphoresis, and diuresis. Its action resembles that of hellebore and lobelia. It is said to be expectorant and of benefit in rheumatism. Dose of tincture, 18 to 60 minims; of extract, 3 to 30 minims.

Cinchonidinæ Sulphas; Cinchoninæ Sulphas; Quininæ Hydrochloras.—The action of the salts of these two now official cinchona alkaloids, cinchonidina and cinchonina, is very similar to that of the salts of quinina, but less energetic. The hydrochlorate of quinine is more soluble than the well known sulphate, and contains rather more of the alkaloid. The official doses are alike—viz., 1 to 10 grains; but in practice it is usual to make the dose of cinchonidina and cinchonina about one-third larger than that of quinine. Their salts are also soluble in acid solutions.

Morphinæ Sulphas.—The action, uses, and doses, ⅛ to ½ grain, of the sulphate, are the same as those of the familiar hydrochlorate of morphine.

Tinctura Chloroformi et Morphinæ.—This is the official representative of the empirical nostrum, chlorodyne, conspicuous for its poly-pharmacy. I am sure many will question its claims to be thus promoted.

Codeina.—This opium alkaloid has no official salts, and is given *per se*. As a hypnotic, it is much inferior to morphina, but more stimulating. It is said, however, to cause more refreshing sleep, and without unpleasant effects. It is chiefly used in diabetes saccharinus, in which it diminishes and sometimes arrests the excretion of sugar. Dose, ¼ to 2 grains; but much larger doses have been given in accordance with the effects produced.

Coca, Cocainæ Hydrochloras, Lamellæ Cocainæ, Extractum Cocæ Liquidum.—The dried leaves of the erythroxylon coca have been long used by the natives of Peru, both as tea and chewed to enable them to endure fatigue and want of food. The official liquid extract, in doses of ½ to 2 fluid drachms, acts as a mild tonic, stimulant, and restorative, quickening the pulse and respiration, raising the blood pressure and bodily temperature. It is said to lessen the excretion of urea, and hence retard metabolism. The leaves contain an alkaloid, cocaine, isolated 30 years ago, and although then known that its solution produced numbness and coldness of the tongue, it was only last year that Dr. Köller at the Ophthalmological Congress at Heidelberg, showed conclusively that it caused local anæsthesia, so that painless operations could be performed on the eye. Its most remarkable effect is the production of local anæsthesia, particularly of mucous membranes, for which the hydrochlorate alone is used in ophthalmic, laryngeal, and minor surgical cases; as in the extraction of cataract, laryngeal phthisis, nasal catarrh, hay fever, urethritis, vaginismus, painful caruncle, removal of piles, &c. It suspends the feeling of taste, the sense of smell, and the perception of touch. It is used in aqueous solutions varying from 2 to 20 per cent, and applied by brush or spray. The lamellæ contain $\frac{1}{200}$ grain each, and are employed for dilating the pupil, and causing conjunctival anæsthesia.

Brown-Sequard holds that cocaine acts through the medium of the peripheral nerves on the nervous centres, which react by inhibiting sensibility. About seven years ago I showed a quantity of coca leaves before the Medico-Chirurgical Society, and stated that they contained an alkaloid whose solution caused numbness and coldness of the mouth, but had no thought that I was then within touch of such a splendid addition to *materia medica.*

Collodium Vesicans.—This is a new blistering preparation consisting of acetic ether, cantharides, and pyroxylin or gun cotton.

Cupri Nitras.—This consists of deep blue prismatic crystals, which are very deliquescent and highly corrosive. It is used as a powerful caustic.

Elaterinum; Pulvis Elaterini Compositus.—This is the active principle of elaterium, a chemically neutral substance in small colourless crystals, insoluble in water and with a bitter taste. It is by far the most energetic of all cathartics, and special care should be taken in prescribing it. The official dose is from $\frac{1}{40}$ to $\frac{1}{10}$ grain. The compound powder consists of 1 part of elaterinum mixed with 39 parts of sugar of milk. The dose is $\frac{1}{2}$ to 2 grains or $\frac{1}{80}$ to $\frac{1}{8}$ grain of the active substance. These doses make the compound powder seem both weaker and stronger than elaterinum *per se.*

Ergotinum.—This is simply the liquid extract of ergot purified and concentrated to a soft extract. Dose—2 to 5 grains.

Injectio Ergotini Hypodermica consists of ergotin 1 part, camphor water 2 parts, to be made as required. I need scarcely say that the hypodermic injection of ergotin is very effective in arresting hæmorrhages.

Extractum Belladonnæ Alcoholicum.—This new extract for making the plaster and the ointment is to be prepared from the root; dose, $\frac{1}{16}$ to $\frac{1}{4}$ grain. As there is another extract made from the leaves, the dose of which is $\frac{1}{4}$ to 1 grain, there is likelihood of confusion between the two.

Extractum Cascaræ Sagradæ; Extractum Cascaræ Sagradæ Liquidum.—Prepared from the dried bark of the rhamnus purshianus, an American plant. Cascara sagrada is a mild and efficient aperient, strongly recommended in habitual constipation, which it is said to rectify by doses of 10 to 20 minims of the fluid extract taken twice or thrice daily before food. A drachm of the fluid extract taken at bed time acts next morning as a simple purge. Its bitter taste is an objection, which, however, may be concealed by carminatives and aromatics. The official doses are—Extract 2 to 8 grains; liquid extract, $\frac{1}{2}$ to 2 fluid drachms.

Extractum Rhamni Frangulæ; Extractum Rhamni Frangulæ Liquidum.—Prepared from the dried bark of the rhamnus frangula or black alder, from Holland. These preparations act as mild purgatives, and it is presumed are substituted for the old syrup and juice of the rhamnus catharticus or buckthorn, which was apt to cause nausea and griping. Like the preparations of the other rhamni, those of frangula should be combined with correctives. Dose of extract, 15 to 60 grains; of liquid extract, 1 to 4 fluid drachms.

Extractum Gelsemii Alcoholicum; Tinctura Gelsemii.—These preparations are made from the dried rhizome and rootlets of gelsemium nitidum, or yellow jasmine, a climbing plant with fragrant poisonous flowers, growing on the American sea coast from Virginia to the south of Florida. It contains an alkaloid, *gelsemina*, combined with *gelsemic acid*, extremely poisonous, but not official. Gelsemium is a powerful depressant, and is chiefly used to abate facial neuralgia, but also for migraine, pertussis, asthma, hæmoptysis, rheumatism, &c. Its physiological and toxic effects in many points resemble those of physostigmina, but it dilates the pupil. Like the latter, it is said to antagonise the action of strychnina, hence also the poison of tetanus. Dose of extract, $\frac{1}{2}$ to 2 grains; of tincture, 5 to 20 minims.

Extractum Taraxaci Liquidum.—This new preparation proves that dandelion is maintaining its ground in medicine.

The succus conjoined with nitric acid has long been a favourite with me in cases of sluggish liver and bilious headache. Dose, ¼ to 2 fluid drachms.

Glycerinum Aluminis.—This is a mixture of 1 part apparently either of potassium or ammonium alum, with 5 fluid parts of glycerine. It may be used as a local astringent.

Glycerinum Plumbi Subacetatis.—This is a mixture of acetate and oxide of lead with glycerine, and is used for making the **Unguentum Glycerini Plumbi Subacetatis,** in which glycerine, hard and soft paraffin, take the place of white wax and almond oil.

Glycerinum Tragacanthæ.—This preparation forms a translucent jelly and is only used as a pill excipient.

Tabellæ Nitro-glycerini.—These are tablets of chocolate each weighing 2½ grains, and containing one-hundredth of a grain of pure nitro-glycerine. It is worthy of remark that neither the process for making chocolate or nitro-glycerine, nor their *characters and tests*, are mentioned. Probably, and perhaps rightly, dynamitardophobia is the cause. As well known, this substance, *per se*, is a violent and dangerous explosive. It is an odourless, heavy, oily-looking liquid, with a sweetish, pungent, aromatic taste; and is freely soluble in ether, alcohol, and oils. A drop placed on the tongue causes painful aching at the back of the head for some hours. It is prepared by dropping glycerine into a mixture of equal parts of sulphuric and nitric acids, carefully washing and drying at a certain temperature. Long kept, it partially decomposes when slight friction makes it explode. Mixed with infusorial earth it forms dynamite. Its medicinal action is like that of amyl-nitrite, but its effects are more permanent. Minute quantities are rapidly absorbed, and act at once. It lowers the blood pressure, accelerates the pulse and respiration, sphygmographic records showing marked and short dicrotism. It has been given in angina pectoris, spasmodic asthma, epilepsy, puerperal eclampsia, and albuminuria. It may be used, in fact, to lessen arterial tension, from any cause, and hence is indicated also when the heart is feeble from old age or fatty degeneration. I had a male patient lately, aged 24, whose whole body was anasarcous, his urine scanty and highly albuminous. I gave him nitro-glycerine in $\frac{1}{100}$ minim doses twice daily, for nearly a month, by which time the dropsy and albumen were almost gone. Nitro-glycerine may be given in peppermint, aromatic, chloroform, or pure water. A one per cent solution in rectified spirit is usually to be had from druggists, of which the dose is ½ to 2 minims. The dose of the official preparation is one or two tablets, *i. e.*, $\frac{1}{100}$ or $\frac{1}{50}$ grain.

Iodoformum; Unguentum Iodoformi; Suppositoria Iodoformi.—Of late years iodoform has been given instead of iodine in scrofula, rickets, phthisis, syphilis, &c., with, on the whole, favourable results, especially in syphilis. It is rapidly absorbed and easily tolerated by the stomach, but when long continued is apt to cause faintness and headache. Its chief use, however, is in antiseptic surgery. It exercises a very favourable influence on chancres, unhealthy wounds, fungoid growths, &c., and is, moreover, a local anæsthetic. It is used, *per se*, as bougies for use in the nose in ozœna, and in the urethra in gonorrhœa, also as iodoformed wool, and gauze, for syphilitic ulcers. Its smell is an objection, and various odoriferous substances have been vainly used to disguise it. It is sometimes absorbed from wounds, causing vomiting, pyrexia, drowsiness, delirium, and coma, for which frequent doses of potassium bicarbonate have been given as a chemical antidote. Internal dose—$\frac{1}{2}$ to 3 grains; best in pill. The official suppositories may be used in piles, fissured anus, scirrhus of the rectum, &c.; the ointment for syphilitic, strumous, and other ulcers.

Jaborandi; Infusum Jaborandi; Extractum Jaborandi; Tinctura Jaborandi; Pilocarpinæ Nitras.—Jaborandi consists of the dried leaves of the pilocarpus pennatifolius, a native of Brazil, and is by far the most powerful and rapid ptyalagogue and sudorific in the materia medica. It contains an alkaloid, *pilocarpina*, which, combined with nitric acid, forms the official nitrate of pilocarpine. In about five minutes after a moderate dose of jaborandi, flushing and salivation begin, and soon after perspiration, so profuse as to soak the clothes, while it lasts several hours. Meantime metabolism is accelerated; excess of ptyaline and salts flow away in the saliva, and large quantity of urea is excreted by the skin. The nasal, lachrymal, and bronchial secretions, and sometimes the aural cerumen, are also increased. It has no very marked effect on the bowels, kidneys, or liver. The temperature is usually lowered about 1° F.; the pulse and blood pressure at first rise then fall; respiration is unaffected. Applied locally to the eye, it contracts the pupil, causes tension of the accommodative apparatus with approximation of the nearest and furthest points of distinct vision, and amblyotic impairment of sight, from diminished sensibility of the retina. Jaborandi affects children much less than adults. Its action is invariably antagonised by a subcutaneous injection of $\frac{1}{100}$ grain of atropina. Its great power in causing perspiration and rapid elimination has made it to be used in many diseases, especially in renal dropsy and chills. As it depresses the heart's action, it is contra-indicated in cardiac dropsy. It has been recommended in asthma, pertussis, and diphtheria; in the latter it is said that the pseudo-membrane is softened, and hence separates by the copious secretion set up.

The alkaloid is of course much more potent than the leaves. It has been reckoned that $\frac{3}{10}$ths of a grain equal in strength 75 grains of the leaves. Practically the official salt is preferred, and though easily tolerated by the stomach, it is usually given subcutaneously.

Dose.—Leaves, 5 to 60 grains; infusion, 1 to 2 fluid ounces; extract, 2 to 10 grains; tincture, $\frac{1}{2}$ to 1 fluid drachm; pilocarpinæ nitras, $\frac{1}{20}$ to $\frac{1}{2}$ a grain.

Lamellæ Atropinæ.—These are discs of gelatine with some glycerine, each weighing about $\frac{1}{50}$ grain, and containing $\frac{1}{5000}$ grain of sulphate of atropine. They are used exclusively for dilating the pupil.

Lamellæ Physostygminæ.—These are discs of gelatine with some glycerine, each weighing about $\frac{1}{50}$ grain, and containing $\frac{1}{1000}$ grain of physostigmine. They are used exclusively for contracting the pupil.

Liquor Ammonii Acetatis Fortior; Liquor Ammonii Citratis Fortior.—These preparations are introduced simply for making their dilute solutions.

Liquor Ferri Dialysatus; Liquor Ferri Acetatis; Liquor Ferri Acetatis Fortior.—Dialysed iron is a solution of highly basic ferric oxychloride, or chloroxide of iron from which most of the acidulous matter has been removed by dialysis. It is a dark reddish-brown neutral liquid, free from marked ferruginous taste, and contains 98·5 per cent of oxide of iron, and 1·5 per cent of hydrochloric acid. This substance has deservedly acquired a very favourable reputation as a hæmatinic. Its colloidal form has been thought to be the state in which iron exists in the blood. It is readily absorbed, does not constipate, nor interfere with digestion, and rapidly increases the red blood globules. It may even be given hypodermically in doses of 15 minims daily, gradually increased to 30. It is almost exclusively used in anæmia, but also in defective absorption and assimilation, subcutaneously. It is an antidote to arsenical poisoning, but the resulting compound with arsenic is not so stable as that with the older antidote, the moist peroxide of iron. The official dose is 10 to 30 minims, but much larger quantities may be given. The tests for pure dialysed iron are quickly applied and very characteristic, and as it is easily imitated, these should be appealed to on the least suspicion of its purity. The stronger liquor of the acetate of iron is given in doses of 1 to 8 minims, and the dilute liquor in doses of 5 to 30 minims. They are both ferruginous tonics.

Liquor Sodii Ethylatis.—This is a colourless syrupy liquid, first introduced by Dr. B. W. Richardson, and is used as a caustic for the removal of nævi, polypi, &c., to which it may be applied by a glass probe. In such cases it is said to be very useful.

Lupulinum.—This is a granular brown-yellow combustible aromatic powder, obtained from the dried strobiles of humulus lupulus, the hop. Lupulin is stomachic, tonic, and slightly hypnotic. Dose, 2 to 5 grains or more in pill.

Menthol.—This is a stearoptene, or peppermint camphor, obtained from the oil of mentha arvensis and mentha piperita. It occurs in colourless acicular crystals, or in fused crystaline masses, with the odour and flavour of peppermint. It is chiefly obtained from Chinese oil, and has been long used in China for rheumatism and neuralgia. It is said that a small crystal, or a little cotton wool soaked in an alcoholic solution of menthol, placed in the cavity of a carious tooth arrests pain; used externally it may be classed as a rubefacient, and internally as an antispasmodic. Dose, $\frac{1}{2}$ to 2 grains.

Thymol.—This is a stearoptene or thymic camphor, obtained from the volatile oil of thymus vulgaris, &c. It occurs in large oblique prismatic crystals, having the odour of thyme, and a pungent aromatic taste. Thymol is chiefly used as an agreeable antiseptic, its fragrance being an additional recommendation, but it attracts flies to its vicinity. It may be used as a wash, gargle, or as vapour—1 in 1,000; also as ointment—5 to 30 grains in 1 ounce. The results of trials made of its internal use are unfavourable, the effects greatly resembling those caused by carbolic acid. It has reduced respiration, blood pressure, and temperature, and caused renal and pulmonary congestion, and inflammation. Dose, $\frac{1}{2}$ to 2 grains.

Oleo-Resinæ Cubebæ.—This preparation is taken from the American pharmacopœia, and is considered to contain the chief virtues of cubebs. It is given in gonorrhœa and cystitis in doses of 5 to 30 minims thrice daily in water, with gum and sugar.

Oleum Eucalypti; Unguentum Eucalypti.—The Australian blue gum tree, eucalyptus globulus, is held to have anti-malarial properties; hence swampy districts have been planted with it in the belief that it makes them more healthy, which it may do by its rapid growth draining the soil of moisture. The oil, the active medicinal agent, is distilled from the fresh leaves; it is colourless, neutral, or pale straw tinted, becoming darker and thicker by exposure, and has an aromatic odour and spicy pungent taste. It is a powerful antiseptic, and being less irritant and poisonous, and more agreeable than carbolic acid, is often preferred in surgery.

Taken internally in small doses, it causes slight excitement, often with nausea and anorexia, ending in a desire for sleep. Large doses cause sudden depression of temperature, pulse, respiration, and blood pressure, merging into drowsiness, paralysis, and death.

Eucalyptus imparts its odour to the breath, and, like turpentine, gives the urine the smell of violets. It stimulates mucous membranes, and has been given in cystitis, bronchorrhœa, pulmonary gangrene, phthisis, diphtheria, asthma, &c., both in solution and vapour. In pyæmia and septicæmia, hypodermic injections have been recommended. Dose, 1 to 4 minims. The ointment is used for dressing foul ulcers, &c.

Oleum Pini Sylvestris; Vapor Olei Pini Sylvestris.—This oil is distilled from the fresh leaves of pinus sylvestris. It is colourless or nearly so, with an aromatic lavender-like odour, and a pungent, not unpleasant taste. It has been dubbed with what seems to me, a rather unscientific and confusing synonym—viz., "Fir wool oil." Fir wool is the alburnum of young pines, and has been used in rheumatism. But the oil is not obtained from the alburnum, but from the fresh or young leaves, hence it should be called *fir leaf oil.* It greatly resembles oil of turpentine, with which, indeed, it is isomeric, if not identical. It is introduced for making the *Vapor Olei Pini Sylvestris,* a very pleasant, mildly stimulating inhalation, much used in chest diseases either *per se* or with chloroform, or oleum eucalypti, or both. I have prescribed it in several phthisical cases; but, as usual, my patients died.

Oleum Santali.—This is a pale yellow thick oil, with a nauseous, persistent, aromatic odour and taste. It is used as a substitute for copaiba and cubebs, having a predilection to stimulate mucous surfaces. Dose, 10 to 30 minims in emulsion thrice daily.

Paraffin Durum; Paraffin Molle.—These paraffins are only used as ointment bases. The soft paraffin, in particular, is a very valuable addition to medicine, being neutral, and having no affinity for acids or alkalies, nor tendency to become rancid. It has been long known as vaseline, &c., and has been given internally in bronchitis and phthisis.

Potassii Cyanidum is introduced for preparing bismuthum purificatum.

Sodium; Sodii Bromidum; Sodii Iodidum; Sodii Sulphis; Sodii Sulphocarbolas.—The metal sodium is introduced as it is required to make the ethylate. The bromide of sodium has been long used in America for the same purposes as the bromide of potassium is used in this country. It contains weight for weight, more bromine than the potassium salt, is more easily tolerated, and is a little stronger in its action. Official dose—10 to 30 grains. Iodide of sodium has been used for some years instead of iodide of potassium, than which it contains, atomically, more iodine, is more easily tolerated, and less depressant. Official dose—3 to 10 grains. Sulphite of sodium is chiefly used for its sulphurous acid. Taken internally, sulphites were supposed to be blood antizymotics *qua* their sulphurous acid, but they are not absorbed as sulphites, but as sulphates, hence their diuretic and laxative effects. Sulphite of sodium may be used as a disinfecting gargle and a lotion in parasitic skin affections. It has also been recommended to destroy the sarcina ventriculi, but as all fungi have an acid medium or environment, alkalies are far more suitable for that purpose. Dose—5 to 20 grains. The sulpho-carbolate of sodium was introduced by Dr. Sansom as a safe and pleasant mode of conveying carbolic acid into the blood for its antiseptic effects. But as in moderate quantities carbolic acid preserves organic matter (including infectious matter) and alkalies hasten its decomposition, this preparation seems to me therapeutically incompatible, and likely to exaggerate the conditions it proposes to obviate. Dose—10 to 15 grains.

Spiritus Ætheris Compositus.—Hoffmann's anodyne. This is a mixture of three fluid drachms of *heavy oil of wine*, or *ethereal oil*, eight fluid ounces of ether, and sixteen fluid ounces of rectified spirit. It is surely an overlook that no *characters* and *tests* are given for the *ethereal oil*, which is the chief ingredient. It is prepared by the action of an excess of sulphuric acid on alcohol. This oil is a transparent, nearly colourless fluid, with an aromatic odour and sharp burning taste. Little is known of its action, *per se*, on the system. Spiritus ætheris compositus is a most useful antispasmodic, stimulant, carminative, hypnotic, and anodyne, and may be given in colic, hysteria, cardiac failure, insomnia, to allay nervous irritation, and procure sleep, either alone or combined with laudanum or morphina. Dose—½ to 2 fluid drachms; best in cold water and repeated every half hour or hour, as required.

Spiritus Cinnamomi is made of the oil, 1; rectified spirit, 49; and is now used for making the acidum sulphuricum aromaticum instead of the bark. Dose—½ to 1 fluid drachm.

Staphisagriæ Semina; Unguentum Staphisagriæ.—Stavesacre seeds have a bitter, acrid, nauseous taste. They were formerly used as a cathartic and emetic, but the violence of their action has stopped their internal use. The ointment is prepared with benzoated lard and the crushed seeds, and contains about 10 per cent of oil of stavesacre. It is used almost exclusively as a parasiticide in scabies and phtheiriasis.

Tinctura Podophylli contains 1 grain of the resin in 1 fluid drachm of rectified spirit. I have given a similar preparation for years, but always combined it with capsicum as a carminative. It may be frequently used in doses of about 10 minims daily for sluggish liver. As it requires to be taken in water, by which the resin is precipitated, the mixture should be well shaken, otherwise the dose being so minute is apt to be left in the vessel. Official dose—15 minims to 1 fluid drachm.

Trochisci Santonini. Each lozenge contains 1 grain of santonin—dose, 1 to 6 lozenges. An excellent mode of administering this very reliable anthelmintic.

I think these new official substances and preparations will be generally welcomed by the profession. The articles and preparations omitted from the pharmacopœia number 22—viz., areca, cadmii iodidum, castoreum, decoctum ulmi, digitalinum, dulcamara, enema tabaci, ferri iodidum, ferri oxidum magneticum, ferri peroxidum humidum, hydrargyri iodidum viride, infusum dulcamaræ, liquor atropiæ, mistura gentianæ, pilula quiniæ, rhamni succus, sodæ acetas, stramonii folia, syrupus rhamni, tinctura castorei, ulmi cortex, unguentum cadmii iodidum.

I believe that these omissions will not only generally be approved of, but that it will be thought the number should have been much greater. The following articles and preparations among others I consider unworthy of official status: Roses, almonds, alumen exsiccatum, ammoniacum, arnica, bael, larch, mezereon, oak, pomegranate, beer yeast, ox bile, poppy petals and capsules; cataplasma carbonis, sabadilla, chalybeate plaster, coccus, horse radish, crocus, cusso, logwood, sambucus, elemi, krameria, figs, dill, sodii sulphas, hemidesmus, matico, vinum ferri, mulberry, cherry laurel, lettuce, reduced iron, manna, galbanum, mastiche, musk, savin, pellitory, plaster

of ammoniac and mercury, of opium, saponis fuscum, plumbi, plumbi iodidi, calefaciens; raisins, sassafras, fœtid spirit of ammonia, sumbul, tobacco, tamarinds, tinctures of galls and of lobelia.

New Groups.—Three new groups are introduced—*tabellæ* "tablets," *lamellæ*, "discs," *oleata*, "oleates."

Changes in Pharmaceutical Groups.—*Acids.*—Ten new acids are admitted, viz., boric, chromic, carbolic liquefactum, hydrobromic dilutum, phosphoric concentratum, lactic, lactic dilutum, meconic, oleic, salicylic.

Acidum Sulphuricum Aromaticum is made a little stronger, and is now to be prepared with the spirit of cinnamon and tincture of ginger.

Acidum Sulphuricum Dilutum is now calculated to contain 49 grains of H_2SO_4 in 6 fluid drachms.

Acidum Sulphurosum is increased in strength while the official dose, 30 to 60 minims is unaltered.

Decoctions.—Decoctum ulmi is omitted.

Extracts.—Ten are new, of which two are alcoholic—belladonna, and gelsemium. Five are liquid—Cascara, coca, cimicifuga, rhamnus frangula, and taraxacum. Three are without affix—Cascara, jaborandi, and rhamnus.

Glycerines.—Three are new—Alum, lead, tragacanth.

Enemata.—Enema tabaci is omitted.

Infusions.—One admission—Jaborandi; one exclusion—Dulcamara.

Hypodermic Injections.—Two are admitted—Apomorphina and ergotin.

Liquors.—One excluded—Liq. Atropiæ. Ten admitted—viz., Liquor acidi chromici, ammonii, acetatis fortior, ammonii citratis fortior, arsenii et hydrargyri iodidi, calcii chloridi, ferri dialysatus, morphinæ bimeconatis, sodii ethylatis.

Trochisci.—One new—Santonin.

Oils (essential).—Three are new—viz., Ol eucalypti, santali, pini sylvestris.

Spiritus.—Two are new—viz., Spiritus cinamomi, ætheris compositus (Hoffman's anodyne).

Tincturæ.—One is excluded—Castor. Five are admitted—viz., Tinctura cimicifugæ, gelsemii, jaborandi, podophylli, chloroformi et morphinæ.

Unguenta.—One is omitted, ungt. cadmii iodidi. Ten are new—Unguentum acidi borici, carbolici, salicylici, calaminæ, chrysarobini, eucalypti, hydrargyri nitratis dilutum, iodoformi, staphisagriæ, zinci oleati.

There have also been admitted suppositoria iodoformi, vapor olei pini sylvestris; and excluded, mistura gentianæ, pilula quiniæ, succus and syrupus rhamni.

Potent Preparations Increased in Strength.—The following medicines have been altered from 1 in 109 to 1 in 100, viz.:—

Liquor arsenicalis.
Liquor arsenici hydrochloricus.
Liquor atropinæ sulphatis.
Liquor morphinæ acetatis.
Liquor morphinæ hydrochloratis.
Liquor potassii permanganatis.
Liquor sodii arseniatis.
Liquor strychninæ hydrochloratis.

I feel sure that this change towards uniformity in strength will be generally approved. The principle might be applied with the greatest ease and safety to every fluid preparation for internal use. The doses might vary, but if the strengths were all multiples of 100, it would greatly assist the memory, and often prevent serious mistakes.

Injectio Morphinæ Hypodermica is increased in strength to 10 per cent, *i.e.*, 1 in 10 instead of 1 in 12.

Oleum phosphoratum is increased from about 0·75 per cent to about 1 per cent, and liquor iodi from 5 in 109 to 5 per cent.

There are several other preparations altered in their composition, but these are of minor importance. There are also five "substitutions," the most important of which is that cinchonæ rubræ cortex takes the places of the pale and yellow barks in preparations of cinchona.

Nomenclature.—The changes in the names of medicines are very considerable in number, though only a few are due to alterations in the composition of preparations. A very large majority of these changes are made in order to conform with modern chemical notation, in which salts are named after their metals. In such cases we have now ammonii, sodii, potassii, magnesii, for ammoniæ, sodæ, potassæ, magnesiæ, &c. But ammonia, soda, potassa, and magnesia are still retained where these are used *per se* and in mixtures, hence we have still liquor ammoniæ, sodæ, potassæ, &c., &c.

An unnecessary change, as it seems to me, has been made in the names of the alkaloids, which are now to be called atropina, morphina, quinina, strychnina, &c., their English equivalents being atropine, morphine, quinine, strychine. As the glucosides have their terminations in *in*, the verbal distinctions formerly existing between them and the alkaloids may cause some confusion.

DARWIN'S DOCTRINE OF EVOLUTION IN EXPLANATION OF THE COMING INTO BEING OF SOME DISEASES.

By WILLIAM AITKEN, M.D., F.R.S.,
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Section VII.—*Gradual and Progressive Evolution of Zymotic Diseases and Classification of Anomalous Cases.*

With regard to diseases which were wont to be called zymotic, which possess the peculiar character in common of suddenly attacking great numbers of people at intervals under unfavourable sanitary conditions, and which are emphatically the "*morbi popularis*"—"the people's plagues"—may we not regard the period as ripe for entertaining a belief in the probability that—*in addition to a mode of propagation direct from previously existing cases*, as of small-pox from small-pox, of typhus fever from typhus fever, or of enteric fever from the hypothetical germ passed from the intestinal canal of a previous enteric patient—there may also be another possible mode of origin, development, and propagation of such diseases—namely, by an evolutionary process, more or less external to the individual, but influenced by his constitutional pre-disposition, and mainly determined somehow by the conditions of his surroundings—environment—and of which as yet we not only do not know enough, but we scarcely know anything at all.

By the application of Darwin's theory of evolution to explain the "coming into being" of zymotic diseases, I think we may obtain a more comprehensive and satisfactory view of their pathology than we have hitherto been able to get; and with increasing power and efficiency in our efforts at preventing them. They are those diseases which possess the peculiar character in common of *suddenly* attacking great numbers of people at intervals in unfavourable sanitary conditions. In the eloquent language of the late Dr. Farr—"They distinguish one country from another, one year from another; they have formed epochs in chronology; and, as Niebuhr has shown, have influenced not only the fall of cities, such as Athens and Florence, but of empires; they decimate armies, disable fleets; they take the lives of criminals that justice has not condemned; they redouble the dangers of crowded hospitals; they infest the habitations of the poor, and strike the artisan in his strength down from comfort into helpless poverty; they carry away the infant from the mother's breast, and the old man at the end of life; but their direst eruptions are excessively fatal to men in the prime and vigour of age."[*] These variable characteristics, as far as the succession of diseases can be traced in past ages, and the peculiarities they have exhibited at different periods of the world's history, or even within comparatively recent cycles of years, point unmistakably to their gradual evolution with the development of civilisation and with those factors which make up the insanitary environments of peoples and nations, cities, towns, and villages, armies and fleets, jails and crowded hospitals, and the insanitary habitations both of the poor and the rich. Thus the march of civilisation (so called) has had much to do with the evolution of zymotic diseases. "The breath of civilisation is poisonous to savages."[†] The bilious disorders, now the terrible scourge of the *tierra caliente*, were little known before the conquest of Mexico, in 1519. The seeds of the poison seem to have been scattered by the hand of civilisation; for it is only necessary to settle in a town, and draw together a busy European population, in order to call out the malignity of the venom which had before lurked innoxious in the atmosphere. The epidemic of the *matlazahautl*, so fatal to the Aztecs, is shown by M. de Humboldt to be essentially different from the *vómito* or bilious fever of our day. Indeed this disease is not noticed by the early conquerors and colonists, and, Clavigero asserts, was not known in Mexico till 1725. Humboldt, however, agrees that the same physical causes must have produced similar results, and so carries the disease back to a much higher antiquity, of which he can discern some traditional and historic vestiges.

When Cortes landed with his force on the very spot where now stands the modern city of Vera Cruz, little did he imagine that the desolate beach on which he first planted his foot was one day to be covered by a flourishing city, the great mart of European and Oriental trade, the commercial capital of New Spain. "But the place was surrounded by stagnant marshes, the exhalations from which quickened by the heat into the pestilent malaria, have occasioned in later times wider mortality to Europeans than all the hurricanes on the coast. It was the first colony in New Spain. It was hailed with satisfaction by the simple natives, who hoped to repose in safety under its protecting shadow. Alas! they could not read the future.

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[*] *Sixteenth Annual Report of the Registrar-General.* Appendix, 1856. P. 76.

[†] Darwin, *Descent of Man*, vol. i, p. 239.

. . . . . The light of civilisation would be poured on the land; but it would be the light of a consuming fire, before which their barbaric glory, their institutions, their very existence and name as a nation, would wither and become extinct! Their doom was sealed when the white man had set his foot on their soil." The visit of Narvaez with his fleet left melancholy traces amongst the natives that made it long remembered. A negro in his suite brought with him the small-pox. The disease spread rapidly in that quarter of the country, and great numbers of the Indian population soon fell victims to it. It spread far and wide till it reached the Aztec capital, sweeping over the land like fire over the prairies, smiting down prince and peasant, and adding another to the long train of woes that followed the march of the white man.*

Zymotic diseases and individual diseases in place of being considered as "separate existences" ought to be looked upon as departures from the normal type or line of health, which every organism possesses more or less strongly—so that pathology is only abnormal physiology—"a branch of biology which concerns itself with the perturbations of the normal life, † so "that diseased states of the body are but modifications of healthy states, deviations from the beaten track, shortcomings of the physiological standard." "There is no definite limit where health ends and disease begins." And "to find the proper physiological analogies for disease processes is the task of modern pathology. The physiological idea is, indeed, the hope and inspiration of pathological science, as it is also of medical practice." ‡

Hitherto we have been too much given to study cases as to how near their symptoms approach to certain clinical typical standards (as laid down in text books), and not as they merely show departures from healthy types, *i. e.*, from those normal physiological processes which maintain the state of health. (Hughlings Jackson.) It is such departures which make up the disease, and it is the aggregate of the clinical phenomena which are in evidence by which we recognise its presence. Hence it is this evidence, at the bedside, which the clinical student must seek out from accurate observation of the patient before him, rather than from the description in a book of a disease which may merely resemble the patient's symptoms.

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* *History of the Conquest of Mexico.* Prescott, vol. i, 254-298; vol. ii, p. 368.

† Millican, *loc. cit.*, p. 9; also Huxley.

‡ Dr. Creighton "On the Autonomous Life of the Specific Infections." *Brit. Med. Journal*, 4th August, 1883.

Working in this comparatively narrow groove we have become oblivious to a great mass of facts almost insensibly increasing from day to day which cannot be explained on the older theories, but to which the cardinal truth of evolution would seem to afford a rational explanation—and much evidence is accumulating in favour of the theory of progressive evolution as sufficient to explain, not only the origin of many forms of constitutional or "inbred" disease, but the progressive development of some fevers, like enteric fever, and like scarlet fever and diphtheria, from simple cases more or less anomalous—obvious departures from the usual normal types of these zymotic diseases gradually acquiring specific infectiveness as the cases multiply.

I have myself had experience of sore throats commencing in more or less acute tonsillitis, due apparently to indifferent causes gradually becoming more and more severe, as case followed upon case, till (as if by progressive development) they eventually culminated in typical scarlet fever, or in diphtheria with its unmistakeable sequelæ of paralysis. Such cases thus acquired by a process of evolution through several individuals, their typical infectiveness, each new one furnishing its quota of pernicious material to the surroundings and thereby adding to the virulence and to the amount of the concurrent factors setting up the disease. This question of "progressive development" has been especially illustrated by Dr. Millican in his work already noticed, and also by Dr. G. de Gorrequer Griffith; and under this heading the former writer describes "a series of cases at first indeterminate, or consisting merely of some symptom which is prominent in one of the ordinary specific or zymotic diseases, but becoming increasingly more and more typical, as it progresses through various patients, until at last we behold a distinct evolution of what is a specific disease," and he gives examples of a first case of diarrhœa developing eventually into cases of enteric fever, and of sore throat into diphtheria or scarlet fever.*

Instances of the evolution of scarlet fever through progressively developing bad sore throats are also recorded in detail.† Similarly, cases of diphtheria were shown by Dr. Thorne and others to be evolved from membranous croup, inasmuch as it was observed in several outbreaks of diphtheria that the earlier deaths were due to membranous croup, while the later ones were due to malignant diphtheria.‡ Over a large area there would be a great tendency to sore throat; then groups of cases would occur here and there in which the disease became decidedly infectious; and at last in a single village in the area an outbreak of diphtheria would occur in its most severe and fatal form.*

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* *Loc. cit.*, p. 22 and 97.

† Millican, *loc. cit.*, p. 81.

‡ See *Report of Medical Officer of Health.*

But I could wish no better example, because without bias, as to the question of the gradual evòlution of zymotic disease than that furnished by the Director-General of the Army Medical Department of the War Office, Sir Thomas Crawford, at p. 4 of the very comprehensive memoranda which he recently issued for the guidance of the officers of the medical staff of the Suakin Expeditionary Force. There it is written:—

"The events making up the medical history of an army in the field develop themselves with a regularity that is almost monotonous. Looseness of the bowels, under the name of camp diarrhœa, begins to be common almost as soon as the army takes the field. This is in a large number of cases compatible with apparently good health, and is doubtless attributable to the changed condition of life. Soon cases of fever appear, some of very brief duration, which are classified as heat fever, and some are attended with diarrhœa, marking the commencement of enteric fever in the force. The development of this disease and the proportions it will assume will be merely a question of time and circumstances. The disease embraces every variety, from the mildest to the severest types, from the so-called ambulant to the most fatal forms. The instances in which this fever occurs as a relapsing typhoid properly so-called, with an invasion fever period, followed by one or more febrile recurrences in which all the characteristic phenomena are repeated with intervals of apyrexia between them, are also not uncommon. The disease occasionally runs so mild a course as to resemble a febrile dyspepsia, and then the thermometry of the fever either fails to be recognised at all, or at any rate fails to be recorded with any degree of accuracy."

Again, no broad nor defined lines can be drawn between the severest cases of cholera and those slighter and generally curable cases which are seen during the prevalence of an epidemic, or which occur as sporadic cases during its intervals. An attentive observer may trace up every grade from the merest cholerine to the terrible disease which kills inevitably in a few hours. The cases may pass into each other and the one may induce the other, so that alliance at least is implied in such possibility. Abrupt lines of demarcation between such allied affections have no existence in nature. *

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* Millican, p. 80.

The recorded irregularities from the artificial clinical types of diseases are now so numerous that they form a very large class still standing alone—so large a class that comparatively the so-called typical cases become an insignificant minority.† Practically, for example, it has not been found possible to classify all the fever cases under the definite types described in books. Cases of an anomalous or mixed nature do occur concerning which a distinguishing diagnosis cannot be given. While certain distinct forms of continued fever are capable of being recognised as described in books, there can be no doubt that cases of fever do occur all over the world which run a continuous course, but having no other specific characters, and which in many respects do not seem quite the same as those with which we are so familiar, and which can at once be clinically recognised. For example, the late Dr. Murchison records in the forty-first volume of the *Medico-Chirurgical Transactions* that he had to leave out of consideration about 200 anomalous or doubtful cases which he could not classify as either typhus or enteric fever.

A similar class of doubtful or anomalous cases are seen to occur in places where yellow fever and remittent fevers prevail, and which cannot be classed as either the one or the other.

In the Mediterranean latitudes there is a "gastric remittent" fever described, which seems to have many characters in common with some forms of continued fever, but which cannot be identified with any of the known forms.‡

Wunderlich and Murchison both describe febrile phenomena which are of so anomalous a kind that they refer them to a combination of the poisons of typhus and enteric fevers, so that the characters of each do not remain distinct. So likewise Professor W. T. Gairdner, in stating that of late (1853 to 1862) the cases of fever in the Edinburgh Royal Infirmary have not been more than seven or eight cases a month under his notice, but they included "*numerous anomalous fevers* which have quite overborne the numbers of genuine typhus and of enteric fever together." § A fever termed "gastric" was very distinctly described by the late Dr. Andrew

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* Dr. E. A. Parkes on *Cholera*, p. 5.

† Millican, *loc. cit.*

‡ Craigie, *Practice of Physic.* Marston, *Army Medical Department Reports.* It is also described by Dr. Henry Veale under the name of *febris complicata;* and by Dr. J. P. H. Boileau. Appendix to *Outlines of Science and Practice of Medicine*, by W. Aitken, M.D., F.R.S.

§ *Clinical Medicine*, p. 154.

Anderson, of Glasgow, which would also come under this head.

The "bilious typhoid" or "bilious remittent," described by Griesinger, of Tübingen, is another form of undefined continued fever.

At the Clinical Society of London, so recently as 23rd October, 1885, Dr. Edward Seaton gave an account of "Characteristic Symptoms of a Febrile Epidemic Illness at a School."* This school was an Orphanage near London, containing about 600 children, and the outbreak of illness took place during the past summer. "The disease occurred in 157 cases; it was confined to the inmates of the school, and did not spread to houses or cottages close by; it began in June, and proved fatal in seven cases. The earlier cases were generally more severe than the later ones; and there were second attacks in at least five instances, in one of which the interval was sixty-six days. No adults, of whom there were about twenty at the establishment, were attacked. The onset of the illness was sudden, without any premonitory symptoms. The first symptoms were rigors and severe frontal headache, followed in a few hours by pyrexia, vomiting (often very severe), without diarrhœa, scantiness of urine, and almost complete absence of the chlorides therefrom. The crisis rapidly developed; fatal cases terminating within twenty-four hours, and in uncomplicated cases defervescence occurring, in two or three days in slight cases, and in four or five days in severe cases, by a sudden fall of temperature, which was generally simultaneous with the appearance of a herpetic eruption on the upper lip, and with perspiration, but no marked sweating. Earache, occasionally followed by otorrhœa, was a late symptom of the fever in some cases. There was absence of any other local pains, except those due to the straining of the muscles from vomiting. The illness rarely extended beyond four or five days, unless complicated with pneumonia. The pyrexia was variable, the highest temperature extending from about 101° F. in slight cases to 106° F. in very severe cases, and more than half the cases were of this latter type. The fall of temperature was as sudden as its rise, unless pneumonia supervened. The ear-mischief appeared to be due to extension of inflammation from the naso-pharyngeal passages up the Eustachian tube to the middle ear. In the only fatal case examined *post-mortem* there was pneumonia of the base in each lung, and patches of congestion of the ileum for some four or five feet above the cæcum. Dr. Seaton thought the disease was specific, that it was probably not contagious, and that its period of incubation was short. Dr. Bridges further gave some interesting facts respecting the etiology of the affection. He describes the school as very unhygienic; the land attached to it was only six acres in extent, and the earth-closet system had been adopted for the last twenty years. All the refuse from the earth-closets had to be distributed over the small area of land available—at most an acre and a half—so that this land was quite overcharged with fæcal matter. There had also been, in previous years, cases of sudden illness, and even death, which were ascribed to the unsanitary surroundings. The disease was quite unlike enteric fever. Dr. Bridges thought it was caused by the exhalations from the sewage sodden land on which the elder boys were put to work, and to which the younger ones, who ran in the playground, were not required to go; thus was explained the much greater incidence of the illness upon the bigger boys, as well as the escape of those boys who were confined to the Infirmary. It must not be forgotten, also, that the rainfall from June to September was only one-fourth of the usual amount; this fact may have partly influenced the outbreak. It is well that these facts should be known far and wide, because the extensive use now made of earth-closets in districts where there is difficulty in disposing of fæcal accumulations must be placing many localities in a condition similar to that of this orphanage; and if this kind of epidemic illness has any relationship to such surroundings, there will probably not be long to wait for proof thereof."*

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* *Brit. Med. Journal* and *Lancet*, 31st October, 1865.

This narrative clearly describes a fever which cannot be referred to any of the well known orthodox forms. Is it, then, a new disease which has sprung up *de novo* out of the environments of the orphanage—one of the innumerable forms of a "filth disease?"

A classification of "anomalous" cases, *i.e.*, of recorded irregularities or departures from type has been definitely formulated for the first time by Mr. Millican, under the following heads:—

CLASS I.—*Variability in transmission—as in cases where disease of one type appears to convey disease of another type.*

This class appears to me to correspond to the cases long ago described as instances of the "conversion of diseases," and embraces cases of every conceivable variety of diphtheria and scarlatina with and without rash, contracted, for example, from cases of simple excoriations with fever attributable to common cold. Cases in which scarlet fever and diphtheria appear to be interchangeable; in which cases of diphtheria appear to arise from scarlet fever, and scarlet fever from diphtheria; or in which cases of scarlet fever give rise to measles; or, lastly, in which rose rashes occurring in puerperal fever, connect them with sources of infection from scarlatinal cases—such cases terminating in the ordinary symptoms of puerperal fever, arising in this way from sources of infection of zymotic origin. Thus the contagia of measles, diphtheria, erysipelas, typhus, and typhoid fever have been shown by Mr. Howse, of Guy's Hospital, to give rise to a septic form of puerperal fever.*

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* *Brit. Med. Journal*, 31st October, 1885.

The important question of the occasional spontaneous evolution of general disease—(its autochthonous production—by self-infection through the products of abnormal processes within the body itself), has been already referred to, and has recently received further elucidation by Dr. Robert Barnes, obstetric physician to St. George's Hospital. He has shown how some forms of puerperal fevers may spring up in the patient's own system without having arisen from any external source (autogenetic). The event happens in this way: an active process of building up has been going on up to the time of delivery. But the moment delivery is accomplished, the reverse process of demolition and of carrying away the refuse is begun. Absorption and excretion are then the ruling energies, so that the refuse stuff may be cast out of the body, which, if not duly excreted, may be as poisonous as are the elements of urine when they are not duly excreted.

Moreover, the conditions which accompany the ailments of the parturient female distingush them from the diseases of all other persons, and the following factors must be taken into account in explaining how disturbance of the puerperal process may lead to the spontaneous evolution of puerperal fever. (1.) The blood of the parturient female has been very much altered during the construction and nutrition of embryo and uterus; and so it greatly differs from the blood of the woman in her ordinary state. It is in this blood that the *post-partum* and puerperal processes are wrought; and this altered blood is associated with universal changes going on in the body.

Science records new facts, day by day, which lead us to conclude that, in the pregnant woman, there is not a single fibre or a single drop of liquid which does not undergo some modification.†

At the time of labour there is an excess of that colloidal fluid called fibrine, with a diminished proportion of red corpuscles, increased proportion of water and increase of white corpuscles, so that, as Dr. B. W. Richardson observes, "the blood at that time is in a *trembling equilibrium,* ready on the slightest possible disturbance to precipitate it. There is also a diminution of salts in the blood—a condition still more favourable to the precipitation of the colloid fibrine. The woman has also been supplying to the child a mass of blood from her own body, which has now (suddenly) ceased to be supplied, so that practically she is in the condition of a person who has lost a limb, or a considerable portion of her body." She is also in a peculiar nervous condition. The fall in nervous and vascular tension involves a change in the dynamic state of the circulation. Then follows a period of comparative rest, following the labour, of about 48 hours duration, preparatory to the active processes involved in breaking up of tissues, now of no use, and of casting out the refuse stuff, for which adequacy of function in every organ is of the utmost importance. Hence, evidence of self-poisoning is rare before the third day.

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* *Guy's Hospital Reports*, vol. xxiv.

† Tarnier, quoted by Dr. Barnes in *Brit. Med. Jour.*, 13th Dec., 1884.

Dr. Barnes further describes the progress by evolution of the febrile state, which, having thus been developed, is capable of being propagated by direct succession in circumstances favourable for its transmission. In other words, once autogenetically developed, it may continue to propagate itself by personal contagion or infection.

The peculiar condition called "Kussmaul's coma" or "diabetic coma," is another example of the autochthonous evolution of disease. It is an evolution which is shown to be not peculiar to diabetes, but occurs in pernicious anæmia and in the typhoid states, presumably through some (as yet unknown) chemical decomposition occurring within the body, and affecting the blood or other fluids. It has also been described under the hand of acetonæmia, in the belief that it is due to acetone in the blood. It usually betokens a sudden spontaneous self-infective poisoning, and a rapid death.

It must, therefore, be admitted that "the living tissue elements of the body itself play a much more important part in the elaboration of septinous and allied poisons than what has been of late ordinarily ascribed to them."*

Class II.—*Diversity from Unity, as in "cases where, from a common source, two or more specific diseases appear to take their origin," in which the same insanitary conditions have given rise to diphtheria and typhoid fever in different patients;*

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* Dr. T. R. Lewis, *Microscopic Organisms found in the Blood.* Calcutta, 1879, p. 57.

to typhus and typhoid originating from the same source; to scarlet fever and diphtheria; to typhoid and typhoidal pneumonia; to cörelatives of sore throat and scarlet fever; to diarrhœa and typhoid; to diarrhœa and cholera; to catarrh and measles; to catarrh and rheumatic fever, and to many other named forms of disease; also to diphtheria appearing to be interchangeable with follicular tonsillitis, and having distinct pathological connection with other diseases, as in the use of bad water giving rise to cases of diarrhœa, purulent ophthalmia, erysipelas, or pharangeal diphtheria.[*]

Here the same poison apparently originates typhoid and diphtheria. The two diseases often occur and run side by side in different individuals in the same house.[†] Numerous cases are detailed by Dr. Millican, and are now of frequent occurrence in our medical journals.

Class III.—*Nondescript cases, which comprehend febrile diseases of an indeterminate nature, and some of them infectious;* as, for example, rötheln or German measles, which has now for some time been regarded as a distinct and comparatively new disease, allied to scarlet fever on the one hand and to measles on the other, and capable of generation *de novo*. Such cases have also been described as "hybrids," or rather as *nondescript* cases, because their characters are so indefinite that it is difficult to classify them while presenting features of an anomalous kind, as when cases of typhoid fever appear with a scarlatina eruption, or with a measle-like rash; or scarlatina, measles, and whooping-cough ending in a fatal form of enteric fever; fatal cases of scarlatina, accompanied by *swelling* of Peyer's patches, but no ulceration; and cases of *mixed* enteric and scarlet fevers, in which the concurrence of measles with variola subsequently gave origin to a case of scarlatina with variola; cases of typhus with scarlet fever rash and characteristic sore throat.[‡] Dr. W. J. Collins also records his experience of cases of variola with scarlatina rash, of hybrids between scarlatina and diphtheria, of typhoid with typical rötheln rash, and of puerperal fever closely resembling typhoid.[§]

In an admirable paper on the Pathology of Scarlatina and the Relation between Enteric and Scarlet Fever,[||] Dr. John Harley (late physician to the London Fever Hospital), gives an account of the morbid anatomy of forty cases of scarlet fever, in twenty-eight of which he gives a consecutive history of the progress of the case and of the morbid changes from day to day. Until this time no connected account of the pathology of scarlatina can be shown to exist in medical literature. Dr. John Harley found that the most fatal period is from the third to the sixth day, and so invariable are the essential lesions that it may be said there is no disease in which the morbid effects are more uniform, and which show that scarlatina is essentially a disease of the lymphatic system —*febris lymphatica.* It is attended with inflammatory action of this system of glands, *i. e.*, of the spleen, mesenteric glands, the tonsils, and the solitary and agminate glands of the intestines, and the primary lesions are those which result from their inflammatory action, others (and, it may be, secondary lesions) having reference to the condition of the blood and the bile, and that a more or less sudden death is likely to occur during the first week of the disease from the formation of fibrinous clots in the heart and great vessels during a pyrexial state, and this may happen during any period of the disease. It is indicated during life by the reduction, often sudden, of a full pulse of about 120 to a dribble of 150 or 160 almost imperceptible impulses, and this failure of the heart's action is commonly attended with orthopnœa and delirium from obstruction to the pulmonary and cerebral circulations. He further records cases in which he has observed the primary inflammation of the intestinal and sometimes of the other glands pass into the ulcerative change, and so lead to the development of enteric fever as a sequel to scarlatina.

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[*] Dr. Dickinson in Med.-Chir. Society, *Brit. Med. Jour.*, 24th May, 1879.

[†] Clement Dukes, *Brit. Med. Jour.*, 25th January, 1879.

[‡] Millican, *loc. cit.*, p. 100.

[§] Reply to Dr. Millican's circular, *loc. cit.*, p. 101.

[||] *Med. Chir. Trans.*, vol. lv, p. 103.

From a careful analysis of his cases, Dr. Harley is of opinion that *one general conclusion is inevitable as to the connection of scarlet fever*, namely,—*that the pathological changes accompanying an attack of scarlet fever include all those of the first stage of enteric fever, and are so far identical with them.* It follows, therefore, that the transition from the former disease to the latter is nothing more than a natural pathological sequence, readily determined by any cause which may increase the intestinal irritation.

The transition from scarlet fever to enteric fever is further shown to be very insidious in its progress and complete in its results, and Dr. Harley gives further examples of cases in which the symptoms of the two diseases co-existed, in which he also indicates the points at which the outward symptoms of the two diseases meet and overlap one another. A large number of cases of enteric fever may be traced back to their origin in well marked scarlet fever. It is therefore as incorrect as it is unscientific to divide the train of outward symptoms which constitute the phases of one morbid condition into two sets, indicative respectively of two specifically distinct diseases, as so regarded. All such classification puts an artificial line of demarcation where no real limit exists, and for a time at least effectually bars the advance of truth.

Excepting perhaps the flushed cheek, the mark of persistent abdominal irritation, there is no feature of enteric fever which may not be observed in many cases of scarlatina, and conversely, a large number of patients who came under our notice for the first time, suffering from enteric fever, will present the pallid face, the excoriated nostrils, the large red lingual papillæ and tonsils, the moniliform glands, and, occasionally, the aural discharge of a declining attack of scarlatina. Dr. Harley has also given an instance in which albuminuria and general anasarca immediately followed an attack of enteric fever. *

This intercurrence and sequence of scarlet and enteric fevers has been noted by several authors, and attributed to accidental coincidence; but Dr. Harley's evidence is sufficient to justify the belief that it is due to a most intimate pathological relationship; and that the pathology of scarlatina is precisely that of the first stage of enteric fever; and to the contagious variety of enteric fever he has applied the term of "abdominal scarlatina," as an appropriate definition of a disease which is ofte nto be met with. Finally, Dr. Harley asks his fellow-labourers to go one step further with him, in the interests of truth as opposed to dogmas worthy of the dark ages, and discarding those transcendental ideas of enteric fever which make of it a specific disease always dependent on one particular poison, open their minds to receive what experience will soon teach them—that enteric fever, and all its attendant phenomena, may occasionally become a part of almost any other general inflammatory condition, specific or simple.

Enteric fever is now also so universally known to be associated with malarial phenomena in malarious places that "typho-malaria" (in deference to American physicians especially) is now a typical form of fever so named in the recent re-issue of the nomenclature of the College of Physicians.

Numerous other examples of anomalous fevers are to be found in Dr. Millican's work, in reply to his circular, seeking for information on these points.

These, and such like examples as have been already given of the progressive development of disease from a simple to a more complex case—from a comparatively benign and common

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* Reynolds' *System of Medicine*, vol. i, p. 571.

inflammation to a malignant and infective type, through a series of many cases proceeding from a common origin, furnish cumulative evidence of a very cogent kind in favour of Darwin's doctrine of Evolution as sufficient to explain the "*coming into being*" of some types or forms of zymotic disease. It therefore appears to me, as it has done to others, that "all the weight of *a priori* evidence tends to prove that in disease, as in Nature generally, evolution results in the origin of new diseases" *—that "perturbations of the physiological life may ultimately acquire an independent existence as infective diseases, and that common disorders may ultimately acquire specific power."

Facts are in request which will illustrate the natural history of cases rather than mere opinions as to their nature —facts which will make up a complete natural history of the hitherto unclassifiable and abnormal cases—facts which indicate variability in transmission, where one kind of specific ailment appears to have transmitted another disease—facts which suggest a hybrid development, such as the "German measles" (rötheln) out of measles and scarlet fever—facts which show that the same concurrence of factors generating disease appears to have originated in different persons diseases of different types—*e.g.*, enteric in one, diphtheria in another, scarlatina in a third—and, lastly, facts bearing on the *de novo* origin of diseases.† Here, too, as well as in constitutional diseases, heredity seems to have some influence, as would appear from the following example which is described as inherited immunity from individual to stock, from diseases usually transmissible by contagion or infection. Kaltenbach of Giessen ‡ relates that he has twice met with such a case. A twin girl (one of a family of six) who escaped contracting scarlet fever, although twice exposed to the contagion when one or other of the children fell ill—including her twin sister—the child in question being thoroughly exposed to the contagion. In all other respects the twins suffered alike. They simultaneously contracted catarrhs and twice measles. The explanation given is that the mother of the child had scarlatina severely when 6 years of age (*i. e.*, 14 years before the period of conception of these twins). The one who enjoyed immunity resembled the mother in all her physical and mental qualities; the other as strikingly resembled the father, and it is argued that the transference of immunity from the scarlet fever gained by the attack by the mother is not more remarkable than the transference of bodily and mental characters.*

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* Millican, *loc. cit.* p. 84.

† *Loc. cit.* p. 97.

‡ *Virch. Arch.*, Bd. 101, Hft. 1.

Having quoted in the preceding section the opinion of one of the greatest surgeons of modern times, and the most philosophical of pathologists—Sir James Paget—as to the value of recording "anomalous" cases of "constitutional diseases," some of which come under the notice of the surgeon rather than the physician—I would now quote the opinion of one who was not less eminent as a physician—the late Dr. Parkes —as to the value of recording "anomalous" cases of continued fevers and zymotic diseases. "It is these 'doubtful or anomalous' cases, he observes, which require careful and special methods of investigation. They are of the utmost importance to science, for more extended information regarding them will either connect them with forms of fever between which they seem to stand; or the 'doubtful cases' will eventually separate themselves into distinct forms, whose history is still unknown. The power of observation in medicine is a kind of tact which ought to be cultivated with the same assiduity as the chemist practises when he learns how to manage his delicate manipulations. In medicine the observation and recording of phenomena have been held to be an easy and trifling task, which any tyro was competent to do. Hence half the error and uncertainty of medicine. Inaccurate, that is, erroneous and incomplete observation, has been the cause that, till within these few years, the fevers of cold countries have been so absolutely uncomprehended, and that the fevers in hot countries are still shrouded in obscurity. The most valuable addition any one could at present make to our knowlege of tropical fevers would be *a simple record of all the cases in an epidemic.* These cases should be observed with the keen tact of a Chomel, and recorded with the fidelity of a Louis. We want no explanation or word of comment added to them; we want merely the cases. Then, when the numbers are sufficient, we should certainly begin to put order into this chaos. And let not any one who may have the opportunities be deterred from the task by that fallacious and, we beg to say, most reprehensible argument, with which some people may favour him—namely, that his cases will be 'tedious,' 'heavy,' and 'unread.' Unread they will be, certainly, by some of the profession, who consider their routine practice as great an effort as their intellect will bear; but read and analysed, we will venture to say, they will be by those who think no labour too great if they can fix safely the foundations of medicine, and for whom, *if accurately reported*, no cases can be too long, no observations too minute. Only, before the task is commenced, let the observer feel that his powers are equal to it; and let him bear in mind the example of Louis, who recorded most carefully for a long time, that he might train himself to this duty, and then, throwing his probationary cases aside, as too uncertain for use, began to make those remarkable series of observations which have linked his name for ever with the greatest improvements in modern medicine—the employment of a correct method of studying his science."*

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* *Lancet*, 22nd August, 1885, p. 351.

(*To be continued.*)

CURRENT TOPICS.

Arrangements for Next Year's Issue—Periscope.—During the coming year it is the intention of the editors to make at least one important change in the contents of the *Journal*, namely, to omit in future the department of "Medical Items," and to insert in its stead a regular "Periscope" of the medical sciences, abstracts in three or four of the special branches being published every month. It is hoped that by this means not only will our large exchange list be more thoroughly utilised than heretofore, but that papers on many matters of the greatest importance to our readers, at present of necessity left unnoticed, will be made available in a condensed and readable form. The following gentlemen have undertaken the various departments:—

Medicine; Nervous Diseases,	Dr. G. S. Middleton.
Surgery,	Mr. A. E. Maylard.
Pathology; Diseases of Children,	Dr. J. L. Steven.
Gynæcology,	Dr. R. S. Thomson.
Diseases of the Eye,	Dr. J. Macfie.
Diseases of the Ear,	Dr. Walker Downie.
Diseases of the Throat,	Dr. J. Macintyre.
Insanity,	Dr. R. S. Stewart.
Therapeutics; Diseases of the Skin,	Dr. A. Napier.

The Discussion on Tumours at the Pathological and Clinical Society.—We are glad to learn that there is to be a discussion at the Glasgow Pathological and Clinical Society during the course of the present session, somewhat on the same lines as the former discussions on Aneurism, Phthisis Pulmonalis, and Albuminuria. These debates and the demonstrations which accompanied them were so successful and attracted so much attention on the part of the profession, both in Glasgow and elsewhere, that the Council of the Society was encouraged to arrange for a discussion on Malignant Tumours to take place during the month of January next. In calling the last meeting of the Society, the Secretary intimated to the members that a demonstration of specimens of malignant tumours would be held on Wednesday, the 13th of January, and the discussion a week later. In conducting former discussions the Council has always been willing to receive communications from gentlemen who, although not members, have paid special attention to the questions under consideration. By doing so a more widespread interest has been developed in these special meetings of the Society, and in the publication of the Reports a substantial addition has been made to the literature of the subject. Gentlemen, not members of the Society, who may wish to show specimens or otherwise take part in the proceedings, should communicate with the Secretary, Dr. David Newman, 18 Woodside Place, who will also be glad to send billets of the meeting to any who would care to be present if they will send him intimation of their desire to attend.

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* Dr. Parkes in *Brit. Med. and Foreign Med.-Chir. Review.* October, 1850, p. 435.

REVIEWS.

Diagnosis and Surgical Treatment of Abdominal Tumours. By Sir Spencer Wells, Bart. London: J. & A. Churchill. 1885.

The present work is to a certain extent a fourth edition of the first published in 1865, but the new form in which it now appears, together with, more especially, the various alterations and additions made since the publication of the last book in 1882, call for something more extensive than the usually brief review allotted to a work which has reached its fourth edition.

As one would naturally expect, by far the greater portion of the book is devoted to the discussion of ovarian tumours. The subject, however, of uterine affections receives also extensive treatment, while the remaining abdominal tumours in connection with spleen, kidney, pancreas, &c., are only briefly alluded to.

The first chapter begins with an enumeration of the various ovarian and extra-ovarian tumours, and cannot be considered a happy classification, whether viewed from a clinical or a pathological aspect. Thus, one set of tumours are termed malignant, another sarcomatous, a third proliferous cysts. But clinically proliferous cysts and sarcomatous tumours are, unless removed, as malignant as any kind of tumour; and even if malignant be intended to imply carcinoma, some of the rapidly growing sarcomatous neoplasia are in every sense as fatal in their remote effects as the more strictly cancerous, whether removed or not. Again, to ascribe the origin of a malignant tumour to "degeneration of one or all of the tissues" is vague and questionably correct. In the preface, Sir Spencer Wells remarks:—"My time has been too fully taken up as a practical surgeon for me to do much as a pathological explorer." Would it not then have been better to have allotted this portion of the subject to a pathologist? However, this is so minor a matter as compared with what follows, that we should not have ventured to draw attention to it, had it not seemed right that a work, which is justly deemed a standard one and now issued in a form ostensibly for the benefit of students, should on all points be reliable in its teaching.

It is with greater pleasure we turn to the more practical side of the subject and learn what the experienced author has to teach upon the diagnostic and operative features of ovarian disease. The chapter upon Differential Diagnosis is as interesting as it is instructive. Both by diagram and description the various points to be noticed in each particular form of disease are minutely gone into. In discussing the different palliative measures, that of simple tapping through the abdominal parietes appears to be the only one of any practical value. It is useful in some cases as a means of diagnosis between parovarian and ovarian cysts, when it may even be a curative measure in the former. In others, again, it may "sometimes be a useful prelude to ovariotomy, either as a means of gaining time for a patient's general health to recover, or of lessening shock by relieving her of the fluid a few hours or days before removing the solid portion of an ovarian cyst." As regards the question of subsequent suppuration in a cyst and adhesion after tapping, both of which have been raised as objections to the preliminary puncture, the author affirms that the former need never occur with proper precautions, and the latter neither affects the prognosis nor increases the difficulty of the subsequent operation.

The fourth chapter—a long one—has nothing much of didactic value. Dealing with the rise and progress of ovariotomy, it is interesting from a historical point of view, and not the least interesting part is to be found in comparing the modern practice of the various continental surgeons. In all, the decrease in percentage mortality has been steady and progressive, and inasmuch as this is due to the diminution of deaths from septicæmia, the explanation must exist in a more careful attention to, and a complete recognition of, the principles of antiseptic surgery.

The chapter which follows is one perhaps, more than all the others, which conveys lessons of most practical interest to young and inexperienced operators. None but a surgeon, capable of numbering his cases by hundreds, could write with any sense of conveying knowledge of practical value upon the important subject of "Conditions Affecting the Operation of Ovariotomy." Among these conditions we may allude to a few. In referring to the adhesions of tumours as affecting prognosis, Sir Spencer Wells remarks:—"A large tumour, extensively adherent in a patient whose heart and lungs, and digestive and eliminative organs, are healthy, and whose mind is well regulated, may be removed with a far greater probability of success than a small unattached cyst from a patient who is anæmic or leukæmic, whose heart is feeble, whose assimilation and elimination are imperfect, or whose mind is too readily acted upon by either exciting or depressing causes." But in taking into account all cases in which adhesions are met with, whether the patient be healthy or not, the rate of mortality gives a serious aspect to the question. Thus, Sir Spencer Wells remarks in connection with his second hundred cases, "that even with the so-called trifling adhesions—that is, cases in which adhesions are only parietal or partially omental—the deaths were nearly half more than in the free cyst cases, and that among adhesions classed as omental the mortality was nearly double." It is difficult, in the face of these facts, to understand what Sir Spencer Wells means by treating so lightly the adhesions forming after tapping, as illustrated in a quotation given above.

The operation of ovariotomy is discussed at great length, and nothing is omitted to render its description complete, both as to detail of the operation and the difficulties likely to be met with. It is necessary to draw attention to a few points in the operation as performed by Sir Spencer Wells.

With regard to the anæsthetic, chloromethyl is almost without exception used, and the author speaks in the highest terms of its efficiency. "A patient very seldom becomes pale; she sleeps quietly, awakes quietly, is not often sick, and seldom has much bronchial irritation." It is administered by Junker's apparatus. The length of the abdominal incision would seem to be of little moment. The mortality per cent with an incision over six inches showed no increase upon those under that length. Thus it is deemed better to remove a large tumour entire through a large opening than to crush and endeavour to extract through a small one.

When adhesions are met with it is thought advisable to tap previous to attempting separation, and if in any case the adhesion to a viscus is so intimate as to require the knife or scissors, cutting away some small part of the cyst or tumour and leaving it attached would be better than risking the danger likely to ensue upon attempting any complete removal.

The pedicle is treated by silk ligatures tightly drawn around and then returned into the peritoneal cavity. As this practice of ligaturing the pedicle is now almost universally adopted, the somewhat lengthy space devoted to the use of the clamp reads a little antiquated, and might with advantage have been curtailed or even omitted. The statistical part is interesting, as showing the much better result from intra-peritoneal than extra-peritoneal treatment.

Much emphasis is laid upon sponging the peritoneal cavity, so as to be certain of removing all blood clots as well as any cystic fluid which may have become retained. Drainage tubes are never used.

The carbolic spray still forms part of Sir Spencer Wells' *armamentarium*, and although always used, it is with feelings of doubt as to its actual uselessness or utility. The dressings are of the simplest character. Some non-irritating antiseptic gauze or salicylic or boracic wool is applied over the wound and supported by strips of adhesive plaster. A flannel binder is fastened round over all. If all goes well, the dressings are not disturbed until the seventh day.

The subject of oöphorectomy, or Battey's operation, calls forth from the author a few rather stringent remarks upon the needless frequency with which the operation has been performed. Upon this important question we cannot do better than quote in his own words Sir Spencer's judicious advice. "Except in cases where bleeding fibroids may call for the removal of the healthy ovaries, or where some such reason arises for preventing future pregnancy as that in the case just related,* we ought, at least, to require some evidence of the ovaries being diseased before consenting to their extirpation in the hope of curing any of those vague nervous disorders to which women are so subject, which are often dispelled by moral treatment or social changes, are often benefited by measures that can have but little effect except on the imagination, often return after apparent cure in any way, and leave the hapless beings the prey of unscrupulous or illogically enthusiastic experimenters."

The subject of Uterine Tumours commences Part II of the book, and is discussed at considerable length. It consists, however, mainly of a description of cases. These, while interesting and instructive, afford no general rule as to treatment; in some cases the ligature was used and the stump treated intra-peritoneally; in others the clamp; in others again Kœberlé's serre-nœud. We should much like to have seen a fuller record of the previous history of many of these cases operated upon. The acknowledged difficulty in this class of patients is to know whether to operate or not. According to the opinion of one of the best authorities upon the treatment of uterine tumours, it is considered very doubtful whether the mortality from all kinds of fibroid tumours, when left to themselves, would exceed 8 per cent. If this be even only approximately true, the 31 cases narrated with 10 deaths, giving a percentage mortality of 32·2, would seem to suggest that some of the cases at least would have been better left alone. However, as we are in the dark as to the previous history of some of these patients, it is impossible to judge whether the operation appeared justifiable or not.

The subject of hysterectomy appears only to receive exclusive consideration in connection with carcinoma of the uterus. To discuss this operation without any reference to the unparalleled success of Thomas Keith of Edinburgh seems a little strange.

The remainder of the book is rather a simple brief exposition of the author's comparatively small experience in other domains of abdominal surgery, than any more copious and complete discussion of the various subjects. Nephrotomy and nephrectomy, cholecystomy and cholecystectomy, gastrostomy, and intestinal obstruction are all now individually arrogating to themselves a separate and distinct literature, and we might almost say special operators. The cases, however, given by Sir Spencer Wells will all help to elucidate and construct a department of abdominal surgery which may be said yet to be in its infancy.

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* A case in which after each confinement the patient suffered from puerperal mania, the consequences on one occasion being tragically distressing. Dysmenorrhœal suffering was also very great.

In conclusion, we have much pleasure in commending the book to the consideration alike of student, practitioner, and specialist.

A Practical Treatise on the Diseases of Women, Prepared with Special Reference to the Wants of the General Practitioner and Advanced Student. By John Thorburn, M.D., F.R.C.P. London: Charles Griffin & Co. 1885.

What has been said in high places and written in influential quarters might well deter any one desirous of publishing a new work on the diseases of women. We do not doubt the justice of many hard words which have become commonplace, and we can hardly regret that honourable men should have spoken as they were moved, but we are confident that such a volume as the present will only serve to indicate that there are many men in the profession who have not bowed the knee to Baal. There was a real danger that the means used to rectify an abuse might be followed by a reaction which would curtail the sphere of our usefulness, and only the hand of a master might dare an attempt to steady the balance. But in all ages, and on all subjects, knowledge is power, and that power is trebled when judgment and common sense keep pace with knowledge. We can say no less of Dr. Thorburn's book after a careful perusal of its salient points. It offers few opportunities for criticism from any other standpoint, because it is in itself a criticism—a sifting, so to speak, of the metal from the dross. It cannot be asserted that Dr. Thorburn has advanced strikingly new views in gynæcology, his volume rather impresses us as having been written in the spirit which is implied in a few words of his own under the heading of Inflammation of the Uterus:—"The newest and most brilliant achievements of modern gynæcological surgery are all very well in their way. Ovariotomy, hysterectomy, vaginal plastics, &c., are most striking in their results, when we see them grouped in the practice of the few, but they are only concerned with a small fraction of human suffering, compared with that which is daily and hourly, too often vainly, demanding relief at the hands of the great body of the medical profession, on account of chronic inflammatory affections of the uterus." (Pages 200-1.) These are wholesome words, and we think that even Dr. Clifford Allbutt, with his horror of specialism, would not fail to corroborate them. The remarks upon treatment which follow are so obviously just, and comprehend so wide a field, that the most sensitive pure physician would find it difficult to frame objections. They leave no room for Dr. Playfair's recent apologia, as they justify none of the strictures which evoked it. Moreover, Professor Thorburn places no limit upon the duration of treatment in such affections, and we think that in so doing he will be supported by the profession. It seems painfully weak to say that treatment must be abandoned after a certain definite time has elapsed, whether the patient be cured or not. Neither do we recognise that Dr. Allbutt's comments called for any such limitation, and doubtless he would be the last to contend that the province of the physician, gynæcological or otherwise, was limited by the English use of the word "cura." In departments of medicine which do not relate to the diseases of women, the care of cases extends to those which are capable of alleviation rather than cure, and there is no more honourable branch of medicine than that which strives to mitigate the curse laid upon Eve. Because it is so honourable and because its greater successes in ordinary practice are as yet not fully recognised (perhaps not sufficiently certain for full recognition) it offers opportunities to the charlatan. But the more established branches of medicine have passed through such a stage, not indeed without the application of the pruning-knife, and like them gynæcology may hope to survive the process. That Dr. Allbutt's strictures were a judicious pruning we have no doubt. It is monstrous to suppose that the local treatment of uterine disease should always be suspended during vacation time and resumed at the will and pleasure of the physician. It is better that severe criticism, when required, should come from men honoured in the profession than that the profession should be humbled by extraneous criticism in the shape of some new and ridiculous "pathy." Those who read and are guided by Professor Thorburn's remarks on the treatment of Chronic Uterine Inflammation will fall into no error provided they are honourable men; and men who are not inspired with the honour which a great trust begets will find nothing in this volume to suit *their* purpose.

What applies to the subject of inflammation of the uterus applies with equal force to the use of pessaries. Displacements of the uterus are even more frequently associated with conditions of health which do not call for the interference of a medical attendant. Prolapse of the uterus, Professor Thorburn justly remarks, always calls for treatment, retroversion nearly as often does. Forward displacements, unless they produce distinctly appreciable symptoms, are better let alone. When pessaries are required due regard must be paid to keeping them free from septic material, and their influence in causing undue pressure must be systematically watched. We might sum up the dictum and its justification in a few words, which may be permitted to assume the form of aphorisms :—Never apply a pessary unless the patient has symptoms which have a logical relation to the nature of the displacement. Never continue its use unless the expected results soon follow. Never forget that a pessary is a deleterious foreign body producing undesirable pressure, and possibly affording a lodging for septic material, and be careful to keep this view dominant in your patient's mind. Such restrictions afford small opportunity for the mechanical treatment of anatomical curiosities.

We notice, in passing, an excellent suggestion regarding the means used in treating stenosis of the cervix uteri and its concomitant dysmenorrhœa. A male bougie is preferred to the usual dilators. Lister's and Brodie's bougies are of the curve required. The introduction of a solid instrument obviates such dangers as might attend the introduction of air into the uterine cavity by suction when an expanding instrument is used. Moreover, we have found the results more satisfactory, and we think that the force used is more easily calculated when the pressure is exercised directly by the hand than when screw or lever power is interposed. It is not necessary to refer at length to the larger surgical operations where success depends greatly upon personal experience or skill, and possibly upon certain matters of general principle regarding which authorities are still at variance. In such an association we may notice the reference to anæsthetics. Without binding himself to a formal conclusion, Dr. Thorburn evidently prefers chloroform to the other agents in general use. We are aware that this opinion is not universally held, though it is supported by such high authority as that of Sir Joseph Lister and Professor Chiene.

There is an equal diversity of opinion on the subject of complete Listerism. What has been called Listerism is from one point of view a fallacy of the *argumentum ad hominem* class. Sir Joseph Lister discovered and enunciated a principle the practical detail of which he has done more to perfect than seemed to lie within the scope of any man's lifetime. But his teaching and his writing give no more evidence now than they ever did that he is bound to detail. His recent address on the use of corrosive sublimate as a surgical dressing is as fresh with query and suggestion as was his earlier teaching. One point he does not yield, and that is his belief of the causation of sepsies; all that transcends this is more than Listerism. That others should have used less valuable antiseptics and attained success does not disprove his point any more than does the fact that the *vis medicatrix naturæ* helped those to success who never heard of sepsis. Neither is the success of Keith and Lawson Tait a fair argument. We are none of us too young to remember how Keith welcomed the use of antiseptics in his earlier work, and in his recent experience we must make a large deduction for personal dexterity as meeting nature half way. Yet when we make such a concession we cannot avoid laying upon him the burden of proof which justifies him in setting aside further aids which lie within his power. Dr. Thorburn tells us that he has only once seen carbolic acid urine, and that instance was not a major operation. He sees no objection to the effectual use of the spray. Mr. Knowsley-Thornton still adheres to full Listerism, and so do most other distinguished operators in the gynæcological and surgical world. In the face of such opinions those who forsake it accept a very serious personal responsibility for the unpleasant results which appear in their own practice, and which lead them to discard full antiseptic precaution.

Sir Joseph Lister's recently published lecture on a non-volatile antiseptic dressing modifies in some degree the criticism which we should have passed on Dr. Thorburn's use of glycerine of carbolic acid. We can hardly, however, avoid the remark that carbolic acid is rather fastly held by glycerine, and that the use of such dressings is likely to be unsatisfactory if a volatile antiseptic is required.

As a manual for students and practitioners, we think the present volume is all that could be desired. Its rather unusual shape and the length of the lines of print are a little inconvenient; but where so much good material is to be found, such hindrances count for little. No man can avoid feeling better for the sound information and high principle which it contains, while its literary style is unexceptionable.

The Essentials of Histology. By E. A. Schäfer, F.R.S., Jodrell Professor of Physiology in University College, London. London: Longmans, Green, & Co. 1885.

One tendency of recent writers on histology has been to give far too little importance to the simple microscope—all the notice taken of it in most books on the subject being the mere statement that there is such an apparatus. Professor Schäfer, however, in his new volume, *The Essentials of Histology,* has gone a step farther and omitted even the mention of it. Now, that this should be so seems to us to point to a defect which exists in the teaching as well as the text-books of histology at the present time. In the case of the compound microscope all teachers of histology know well how incomplete and distorted the student's ideas of microscopic structures would be, if a full appreciation of the use of the lower as well as of the higher powers were not constantly insisted on, and yet they seem quite to ignore the fact that, in failing to accustom the beginner to work with the simple lens, they are allowing this mistake of want of continuity in the methods of observation to colour all his notions of histology. The student is called on to pass at one bound from the use of the unaided eye to that of the compound microscope, and thus a great gap is left in his knowledge of the facts of ultimate structure. Can we wonder, then that, as too often happens, the result is the loss of a true sense of the relative size of objects under examination, and the production of a confusion in the mind of the student as complete as it is grotesque? There are, too, many appearances—*e. g.*, the details of embryos too large for examination under higher powers, and yet too small for naked eye inspection, which can only be studied under a simple lens; and, apart from purposes of direct observation, every histologist knows how often the dissecting microscope is made use of in preliminary or accessory processes. When, along with these facts, we take into consideration the work done with the simple lens by earlier histologists, we feel bound to urge very strongly the claims of this instrument on the student, and cannot but protest against the omission of all notice of it from a work on *The Essentials of Histology*, which, nevertheless, finds room for a figure and description of Gowers' Hæmacytometer, an instrument, we venture to think, likely to prove of much less practical value to the student of histology.

"Written with the object of supplying the student with directions for the microscopical examination of the tissues," and at the same time "intended to serve as an elementary text-book of histology comprising all the essential facts of the science, but omitting unimportant details," Professor Schäfer's book in the main fully verifies these prefatory statements; and further than this, it has some points of special excellence. For one thing it is very amply illustrated, and presents in this respect a marked contrast to the author's previous treatise on *Practical Histology*. This condition of copious illustration, which we hold to be one of first importance in any work on this subject, is perhaps specially well fulfilled in the chapters on the spinal cord and brain. Another good feature of this book, and one which shows a thorough appreciation of the true method of practical work, is the regular insistence on the necessity for the student of sketching the specimens under examination, a point on which teachers of histology ought to lay greater stress than they do.

The general arrangement is good throughout. Specially adapted "for conveniently accompanying the work of a class of medical students," the book is divided into a series of lessons, at the beginning of each of which short directions are given for the preparation and study of the separate specimens. These practical instructions are followed in each chapter by the descriptive letterpress and the figures, while at the end of the volume is an appendix giving the various methods of preserving, hardening, embedding, staining, and mounting specimens. A very useful table, included in the appendix, indicates the special hardening fluid best suited to each tissue and ought to prove of great service to the practical worker.

As regards details the book is fairly complete, and is well up to date. Indeed, we have a contribution to histological nomenclature in the introduction of the new name for the process of division of the nucleus, karyomitosis—a word which does not, to us at least, seem to have any sufficient claim as against the more general term, karyokinesis.

On the whole this work is likely to prove a valuable one both to the student and the teacher of histology. Still we cannot but think that where so much of the descriptive matter is merely a repetition, more or less extended, of the explanations given with the figures, Professor Schäfer would have been better to forego his attempt to make this volume "serve as an Elementary Textbook of Histology," and to have restricted it to a much smaller compass, giving us, perhaps in some slightly elaborated form, the practical portions from the beginning of each lesson, the figures with their letterings, and the appendix. Such a volume, forming a short practical histological directory more after the plan of some of the simpler anatomical guide-books for dissection would have supplied a want, which at present undoubtedly exists.

The Pathology and Treatment of Stricture of the Urethra and Urinary Fistulæ. By SIR HENRY THOMPSON, L.R.C.S., M.B. Lond. Fourth edition. London: J. & A. Churchill. 1885.

IN reviewing the fourth edition of the work now before us, it is hardly necessary to say anything in its praise. It is written by a surgeon of very large experience, and bears in every page evidence of careful observation and study. The first edition consisted of a treatise to which the Jacksonian prize for the year 1852 was awarded by the Council of the Royal College of Surgeons of England, and contained an epitome of the observations and opinions of those writers who have paid special attention to the subject, together with original observations by the author himself. In the third division of the work the subject of treatment was discussed; and in an appendix a number of cases were reported for the purpose of illustration. In the edition now in our hands the author has not only reduced the bulk of the book by upwards of 100 pages, but he has also removed the account of the illustrative cases which he deemed necessary to publish in former editions. By doing so he has rendered his book more readable and has removed from it controversial matter which he now considers beyond dispute. In short, it is the work of a man of extended experience, whereas the first edition was that of a young writer whose opinions were only being formed. The only point which we regret Sir Henry Thompson has not discussed more fully is the subject of "cathetic fever," or, as he terms it perhaps more properly, "urinary fever." This condition is one which has led to considerable discussion of late years and great divergence of opinion amongst various authorities. It is one upon which we should like to have Sir Henry's opinion stated more definitely and in greater detail than we find it in his book. With this exception the book is well balanced and up to date, and even those who possess former editions of the work would do well to peruse the new issue.

Transactions of the American Surgical Association. Vol. II. P. Blakiston Sons & Co. Philadelphia. 1885.

THE book now before us contains a very complete account of the proceedings of the American Surgical Association. Not only are the papers read before the Society published in its pages, but a verbatim report is given of the discussions and remarks made by those present. Undoubtedly it is a great advantage to have an accurate record of the work done by scientific associations, but it seems to us a waste of space to publish in the *Transactions* of an association all the trivial remarks which may be made after a paper has been read. There is nothing of very special interest or merit in the transactions for this year, but they show very clearly that the members of the association are full of energy and are struggling hard to establish a good reputation for themselves, not only as men of science, but as practical surgeons. The association is a young one, but since its origin it has manifested many good features which are a guarantee for its ultimate success.

NOTES FROM VIENNA.

XERODERMA PIGMENTOSUM—IDIOPATHIC MULTIPLE PIGMENT SARCOMA OF THE SKIN.—Communication to the Society of Physicians of Vienna, on 23rd October, 1880, by Professor M. Kaposi, Vienna.

I. *Xeroderma Pigmentosum.*—I present before you a case of xeroderma pigmentosum, in which already are present in the region of the face, nose, and eyelids, numerous carcinomatous tubercles, and wart-like epitheliomatous formations. The patient, a girl named H. Rudolfine, aged 9, is the eldest of nine (7 girls and 2 boys), in none of whom is the affection present. This is noteworthy in view of the usual history of the disease.

In 1870 I described minutely the peculiarities of xeroderma pigmentosum and affixed to it the name it bears, going so fully into its clinical and important anatomical features that to-day I have nothing further to add to it (Hebra-Kaposi, *Hautkrankheiten*, 2 Th., p. 182). According to this description the disease affects always young individuals, and begins as a rule towards the end of the first, or in the course of the second year of life. It is seen first on the face, back, and palms as light or dark-brown smooth spots, corresponding closely to the spots caused by the sun in summer. Later, these extend in number and size over the neck, fore and upper arms, back of the feet and legs. Up to this point we have only to do with a somewhat extensive pigmentation or melanosis, frequently seen arising more gradually in advanced life. The peculiarities of the disease arise on the appearance of atrophy. Now we see white cicatrix-like shining spots, the size of lentils or

SYNOPSIS OF CASES OF XERODERMA PIGMENTOSUM.

No.	Age.	Sex.	Blood Relationship.	Age at First Appearance of Disease.	Age at First Appearance of Tumour.	Nature of Tumour.	Observer.	Where Recorded.	Observations.
1	18 yrs.	f.	..	Early childhood,	?	..	Kaposi.	Hebra & Kaposi, *Handbook of Diseases of the Skin.* Vol. ii, p. 182.	Died, aged 27, of cancer of the peritoneum.
2	10 yrs.	f.	..	Do.	11 years.	Epithelioma.	Do.	Do.	Died, aged 13, of cachexia of cancer.
3	8 yrs.	f.	Two Sisters.	1 year.	8 years.	Sarco-carcinoma.	Geber and Kaposi.	As above; also *Archiv f. Derm. und Syph.* 1873.	The tumours began on the nose, probably on the right side, as it was worse there.
4	6 yrs.	f.		Do.	None.	..	Do.	Do.	Geber named the case a rare form of nævus.
5	5½ yrs.	f.	Same family.	2 years.	None.	..	Kaposi.	*Med. Jahrb.* 1882. P. 619.	Suffered for 6 months from meningitis.
6	2½ yrs.	m.		Do.	None.	..	Do.	Do.	Not seen by Kaposi himself; communicated by parents. Suffered in his 12th year from carcinoma of the nose. Died 7th June, 1885, aged 13.
7	17 yrs.	m.		?	12 years.	Epithelioma.	Do.	Do.	Numerous tumours on one cheek were removed.
8	22 yrs.	m.	..	16 years.	20 years.	Do.	Do.	..	The first tumour on lower eyelid, extensive ulcerations beginning at right ear.
9	?	f.	Three sisters.	Very early.	..	Angiomyxoma.	R. W. Taylor.	*Archiv of Derm.* (Amer.) Vol. iv, p. 66, 343.	Details are awanting.
10	?	f.		Do.	..	Do.	Do.	Do.	
11	?	f.		Do.	..	Do.	Do.	Do.	
12	?	f.	Two sisters.	Do.	..	Do.	Do.	Do.	
13	?	f.		Do.	..	Do.	Do.	Do.	
14	?	f.	..	..	..	..	Do.	Do.	
15	?	f.	..	..	..	..	Do.	Do.	
16	40 yrs.	m.	..	9 years.	About 39 years.	Epithelioma.	Heitzmann.	*Ibidem.* Vol. iv, p. 67.	First tumour on the cheek.
17	17 yrs.	f.	..	6 months.	None.	None.	Duhring.	*Amer. Jour. of Med. Sc.* Vol. xxvi, p. 424.	Mother died of carcinoma of uterus. No change after the 9th year. Scalp was affected.
18	5 mos.	m.	..	5 months.	None.	None.	W. Rüder.		Skin rough and wrinkled on neck and arms. No mention of pigment.
19	18 mos.	m.	Seven Brothers.	..	None.	..	Do.	On epithelioma of the skin in several members of a family. Berlin, 1880 (*Cit. Neisser, Viertelj. f. Derm. und Syph.* 1883. P. 51).	Numerous warty growths on arms as large as pinhead.
20	4 yrs.	m.		..	None.	..	Do.		
21	5 yrs.	m.		..	About 5 years.	..	Do.		Tumour on lower lip, which separated a few weeks before patient was seen. Scar remaining.
22	9 yrs.	m.		..	8 years.	Epithelioma.	Do.		A tumour on lower lip removed 8 months prepreviously—re-appeared. Numerous warts on the diseased part.
23	11 yrs.	m.		..	11 years.	..	Do.		Wart on the right cheek is beginning to ulcerate.
24	10 yrs.	m.		..	About 9 years.	..	Do.		Died of a carcinomatous growth on forehead.

SYNOPSIS OF CASES OF XERODERMA PIGMENTOSUM—*Continued.*

No.	Age.	Sex.	Blood Relationship.	Age at First Appearance of Disease.	Age at First Appearance of Tumour.	Nature of Tumour.	Observer.	Where Recorded.	Observations.
25	24 yrs.	m.	Two Brothers.	3 months.	22 years.	Epithelioma.	A. Neisser.	*Vierteljahrschrift f. Derm. und Syph.* 1883. P. 55.	Father died of stricture of œsophagus (carcin.?) Patient showed red spots after exposure to sunlight. On right lower eyelid began epithelioma ulceration.
26	22 yrs.	m.		Do.	None.	..	Do.	Do.	Not seen by Neisser. Said to be like his brother's, but without tumour.
27	11 yrs.	f.	Two Sisters.	3 years.	9 years.	Fungous epithelioma.	E. Vidal.	*Annales de Derm. et de Syph.* Vol. iv. No. 11.	The tumours began on right side of nose.
28	11 yrs.	f.		18 months.	4½ years.	Do.	Do.	Do. (*Dermatose de kaposi.*)	Tumours began and extended on right side. Died, aged 11, of exhaustion.
29	15 yrs.	m.	Three Brothers.	2½ years.	4 years.	Warty epithelioma.	Do.	..	Hard excrescences of root of nose, right cheek, and upper lip.
30	12 yrs.	m.		2 years.	4-6 years.	Do.	Do.	..	Most of the tumours on right cheek. One on the right hand separated.
31	10 yrs.	m.		2 years.	5-7 years.	Do.	Do.	..	First tumour on right, then left side of nose, and on middle line of face. Several separated. Died, aged 10.
32	12 yrs.	f.	Same Family.	Began between 12 & 18 months.	10½ years.	Fungous papilloma.	H. R. Crocker.	..	All the tumours and ulcers on right side of face.
33	10 yrs.	f.			Ulceration at 4 years.	None.	Do.	..	Many dried up ulcers; no fungoid tumour; nearly all on right side.
34	9 yrs.	m.			Ulceration at 3 years.	Verrucous papilloma.	Do.	..	Had many ulcers, mostly left-sided. A very prominent one was ligatured. The ulcers developed in the two younger children, one month after their appearance in the eldost, as they were 6, 4, and 3 years of age.
35	19 yrs.	f.	Same Family.	?	?	Melanotic sarcoma; fusocellubre melanoticum-Chiari.	F. J. Pick.	*Viertelj. für Derm. und Syph.* (1885. P. 3. Plates i-iv.)	
36	17 yrs.	f.		?		Warty papilloma.	Do.		
37	2½ yrs.	m.		1 year.		Do.	Do.		
38	9 yrs.	f.	..	2 years.	4 years.	Warty epithelioma.	Kaposi.	*Wr. Med. Wochens.* 1885. No. 44. (*Sitzung d. Ges. d. Aerzte in Wien.* 23 Okt., 1885.)	

larger, covered with thin wrinkled epidermis. The skin becomes thinner in large areæ, looks like parchment, and is drawn together so that the nose is diminished in volume and length. The openings of the eyes, nose, and mouth, are narrowed. Hæmorrhages appear in the neighbourhood of the contracted areæ, and finally a particularly grave symptom of the disease, multiple carcinomata, sometimes sarcomata and malignant papillomata, appears. In several cases these complications caused death. Usually several children of the same family are affected, and with three exceptions, up till now, always members of the same sex, are the sufferers.

Elsewhere, thirteen years after my first publication, cases have been seen and positively diagnosed, after, namely, I had laid eight cases which I had observed before the Society of Physicians in the year 1882, and published them along with illustrations in the *Med. Jahrbüchern* (1882, p. 619, Plates xv to xix).

It is important for the correctness of the original description of xeroderma pigmentosum, and valuable for its pathology, to state that all subsequent observations confirm my descriptions in every particular, and that the plates of these cases, without exaggeration, appear like portraits of the cases which I have seen, so similar are they in appearance in the course of their complications, and in other accompanying circumstances.

From the publications that have appeared, 38 cases of xeroderma pigmentosum have in all been observed. With assistance of a table, made by Radcliff Crocker, on the first three cases met with in England, I have recorded all the hitherto known cases. In the preceding table the interesting details are given of age, sex, blood relationship, and the complications with carcinoma and sarcoma.

Probably a 39th case by Atkinson, and a 40th by Tanturri, both belonging to the year 1877, should be added, neither of them, however, can I vouch for. On the other hand, a case published by Glax in 1875, is, I believe, not xeroderma pigmentosum, but scleroderma.

The short time at my disposal does not permit me to go fully into the peculiarities of this disease, especially of the transformation of melanosis into carcinomatous and sarcomatous formations.

I must add that I cannot relinquish the name chosen by me for this affection in favour of the newer designation of later authors. So long as a name is not found which concisely expresses the character and course of the disease, the original one is justified historically, and best favours its mutual recognition.

II. *Idiopathic Multiple Pigment-Sarcoma of the Skin.*—I present to you a second case, a man, aged 40, from Professor Albert's clinic. On the desire of Professor Albert, I have undertaken to speak of the peculiarities of this affection. The patient suffers from that form of sarcoma, which I described in 1870 as "idiopathic multiple pigment sarcoma of the skin." To the present time, I have seen 25 cases, all in men of middle life. The last was in a man from Budapest. All the cases agree in the facts of their origin and history.

The disease begins always simultaneously in both hands and feet, more frequently on the flexor than on the extensor surfaces. Later it extends to forearms and legs, upper arms, thighs, and then to the region of the face. Small isolated tubercles appear, in size from that of small shot to a pea, in colour blue or brownish-red, round, invariably hard, and embedded in the corium. Owing to the localisation on the palms and soles, they may very easily be mistaken for syphilis palmaris and plantaris. The disease may arise as diffuse discoloured cyanotic hyperæmic spots. Later they change into hard infiltrations. At first soft, they become hard and knotty. Thus arise plaques, in size from that of a shilling to the palm of the hand. Both individual tubercles and the larger areæ may shrivel up within a few months and leave behind a brownish or whitish wrinkled cicatrix. The diseased surface atrophies in the centre, while the tubercles at the border may augment to the size of hazel-nuts, the former may in some cases entirely disappear.

In the meantime new tubercles may arise. The hands and feet become clumsily thickened, the fingers are spindle-shaped, or are variously mis-shapen. Either in whole or part the skin becomes dark blueish-brown, hard as a board, smooth, knotty, or atrophically sunken, according to the state in which the process has advanced. Occasionally development is very rapid, at other times it is slow. Pain is present from the period of the diffuse redness; on pressure it is very severe. Sleep is disturbed, the use of the hands and walking are impossible. In time disseminated or confluent tubercles arise on the lips, nose, eyes, and eyelids. They increase to the size of hazel-nuts, are very succulent, vascular, elastic, blueish-red in colour, smooth, and glancing. Occasionally suppuration arises. At a later period tubercles develop on the nasal mucous membrane causing epistaxis.

In the few cases on which section was performed similar formations were seen in the lungs, liver, spleen, and kidneys. They were especially numerous on the colon, and so vascular that on first sight they were taken to be carcinomatous blood cysts.

Besides the previously described peculiarities, idiopathic multiple pigment sarcoma of the skin is attended with a relatively more favourable course than most forms of sarcoma-cutis, in so far as many tubercles disappear spontaneously. Further, the disease many endure as long as 6-10 years or more—always, however, ending fatally.

As to treatment, I have distinct views, and may perhaps, later, be in a position to describe them.—*Wiener Medizinische Wochenschrift.*

~~NOTES FROM PARIS.~~

PASTEUR'S INJECTION OF THE RABIES VIRUS.—By Dr. Max Nordau.

The most interesting medical incident of the day is the injection by Pasteur of the rabies virus, in those bitten by mad animals, to guard them from hydrophobia. The man who would dare to do this could only be Pasteur, and yesterday, in the Academy of Science, he gave an account of his first injections of the virus into the human body.

It will not be uninteresting at this point to give a short account of Pasteur's experiments in this direction.

It is well known that since 1882 this celebrated chemist and bacteriologist has made this virus the principal subject of his study. The first fact which he demonstrated was that the cerebrum and spinal cord are the principal seats of the poison. Soon after he discovered that the easiest method of communicating the disease is to trepan the skull of a healthy individual, and bring portions of the virus into immediate contact with the meninges. It was found that cultivation in special varieties of animals had the power of strengthening or of weakening the virus. Thus a strong virus loses part of its strength when it is engrafted on the brain of a monkey. The weakened virus taken from the monkey, implanted on a dog, regains part of the strength which it had parted with. The virus reaches its acme in rabbits, in which it almost always (in 99 per cent) manifests itself in the form of general paralysis, very rarely in that of raving madness. The period of incubation appears to diminish as the virus is subjected to more and more frequent cultivation. Thus, virus which Pasteur worked with, taken from a dog, induced the disease on other animals in fifteen days. After transmitting it through a number of organisms it excited the disease in fourteen days, subsequently in thirteen, twelve, eleven days. Finally, after constantly cultivating and transmitting it during three years, Pasteur possesses a virus that occasions rabies after six days' incubation.

Pasteur discovered that to increase the strength of the virus, it must be transmitted through living organisms. It can, however, be weakened in another way. After many experiments, in which the brain and spinal cord containing the virus were exposed to various degrees of heat for a longer or shorter time, and were treated with acids and other substances, gaseous and fluid, he arrived at the result that drying exerts a weakening influence on the virus, the degree being proportionate to the amount of water removed. The mode of operation is as follows:—Sections of brain substance are put into glass vessels, treated with caustic potash and caustic soda, and hermetically sealed. The vessels are then submitted to temperatures carefully regulated, all water withdrawn from the brain substance being taken up by the potash and soda. Thus, on repeating the experiments, in a definite time a fixed quantity of water is withdrawn. In proportion as drying goes on, the virus becomes weaker, till with complete dryness it reaches a stage of absolute harmlessness. Pasteur demonstrated that specimens which have been in the drying tubes for more than fourteen days can no longer produce rabies. After evaporation for eight days, the period of incubation is sixteen days. With shorter evaporation the period of incubation is shorter. After one day's evaporation the results are scarcely different from those produced by fresh specimens.

The first practical application of these experiments was the use of the weakened virus to protect animals from the effects of the strong forms. This was perfectly successful. An animal was subjected to several injections of virus of constantly increasing strength. It was then submitted to the bites of rabid animals and to injection of the strongest virus, but without any symptom of rabies appearing. Still more, when an animal which had been bitten by a rabid dog, or had had the strongest variety of the poison injected, was treated with virus of constantly diminishing strength, the disease was comcompletely prevented. Thus, inoculation prevents outbreak of the disease not only when made previously to exposure to the disease, but also when it is effected during the period of incubation.

To crown these experiments with success, one step was wanting—the isolation of a micro-organism, which could be proved to be the causative agent of the disease. This, however, has not as yet been accomplished. The closest examination of the virulent brain and spinal substance has revealed nothing but minute granules, which could not be said to possess life, although Herr Béchaup did not hesitate to recognise in them his "mikrogynia." Cultivation experiments on every imaginable fluid and solid were absolutely without result.

There were many individuals who, having taken great interest in these proceedings, presented themselves to Pasteur to receive inoculation against previously incurred bites from dogs. For many years Pasteur withstood these solicitations, which became gradually more pressing and frequent. Only after he convinced himself that inoculation with the weakest variety of the virus was absolutely harmless, and that it counteracted the force of the next stronger kind, and after he had collected innumerable dogs and rabbits which, owing to inoculation, were proof against every variety of bite and injection, only then did he deem himself justified to undertake inoculation on the human subject.

On 26th October last he communicated to the Academy of Science that he had inoculated two persons with rabies virus.

The first case was that of a boy, 9 years of age, Joseph Meister by name, who was bitten on 3rd July, by a dog in fourteen places on the upper and lower extremities. His mother brought him with all haste to Paris, the injuries having been dressed with cold water. On 6th July the patient was brought to Pasteur's laboratory in the Rue d' Ulm. On the evening of the same day, exactly 60 hours after receiving the bites, Pasteur injected a quantity of very weak virus, viz.:—An emulsion (in sterilised flesh broth) of a section of virulent poison taken from the brain of a rabbit that had been twelve days in the evaporating apparatus. Next morning an injection of somewhat stronger emulsion followed. In this way an injection of this kind was made night and morning for ten days, till the 16th July. For the two last injections, fresh section of brain was taken containing the strongest variety of the virus yet made use of. During this somewhat heroic treatment the boy was not the least affected in health, and to-day is not injured either by the injections or the bites.

The second case is that of a country lad aged 16, who, on 14th October, was bitten by a dog on the hand. On the 20th, *i. e.*, six days later, he was treated by Pasteur similarly to the first. The daily injections were in his case continued somewhat longer. No evil results followed. Pasteur is certain that this case will be successful, though it is yet too early to pronounce decisively.

The contribution of Pasteur was received in the academy with a storm of applause which has seldom been equalled in a learned assembly. Not only the academicians, but the newspaper reporters and those in the galleries applauded as though they were the heartiest "claqueurs" at the Grand Opera House. Professor Vulpian, who spoke after Pasteur, gave expression to the prevailing sentiment, when he declared "that the speaker had made a discovery that would redound to the endless glory of France, and would fill both hemispheres with his fame."

Pasteur's experiments, however, on the human subject do not, as yet, prove what he is most anxious to demonstrate. They will excite much more interest than his innumerable experiments on animals, although their value is much less than these. The experiments on animals were made under circumstances which made it certain that the subjects of them were affected with rabies. In the case of the human experiments, this cannot be said. The first demonstrated, what hundreds of experiments on animals had already made certain, viz., that injection of weakened virus gives immunity against the stronger forms, and in ascending scale protects against the strongest varieties. On the other hand, there is no proof that Joseph Meister was saved or protected by the inoculations. For, first, it is not certain that the dog was mad. It is not stated whether it was watched, or whether a *post-mortem* was performed on it. And, secondly, we know that not every bite from a mad dog produces rabies. The assertion, therefore, of Professor Vulpian sounds strange, "that the boy was certain to die since he had received fourteen deep bites." The mere number of bites has nothing to do with the result, if each bite is not of itself fatal. The case teaches further that deep wounds that bleed freely are less often followed by death than superficial scratches which quickly heal over.

I repeat, therefore (1), that the human experiments have not furthered Pasteur's latest work. He has only shown what was known. through hundreds of experiments on animals, that inoculation of rabies virus can be performed harmlessly owing to the weakening influence of inoculation; (2), that the boy Meister has not been proved to have been protected by the inoculations, because it is not known whether the dog was mad, or even if it was, that he would have become rabid. But the enthusiasm of the public is not critical, and I do not doubt that Pasteur will be assailed by a crowd of men and women anxious to be protected from rabies. Indeed I am certain that there will be found doctors who will open laboratories for the injection of the rabies virus, establishing themselves as specialists on rabies, and making capital out of the more or less dried specimens of rabbits' brains which they may possess.

MEDICAL ITEMS.

UNDER THE DIRECTION OF

ALEX. NAPIER, M.D.

Therapeutics of Antipyrin.—Dr. Leon Arduin, after long experimentation, publishes the following results. Of its physiological action he says:—(1.) Antipyrin without doubt influences the nervous system; its action is expended upon the medulla oblongata and cerebrum. (2.) Its action upon the circulation is to diminish the force of the heart-beat; animals die of paralysis of the heart. From spectroscopic examination of the blood the drug does not seem to have any special effect upon this fluid. According to Professor Demme it is a poison to the protoplasm. As to the influence of antipyrin upon arterial tension there is a great divergence of opinion; some holding that it is elevated, others that it is lowered. Quierolo, who has made special study of the action of the drug upon the blood-vessels of the skin, has constantly noticed that they become dilated, and by this effect it is, according to him, that antipyrin reduces temperature. (3.) Antipyrin seems to have no great influence upon respiration, nevertheless it is admitted, in a general way, that the respiratory movements are diminished in frequency. (4.) The action of antipyrin upon urinary secretion is, in many respects, still obscure. It is admitted, however, as demonstrated by Müller, that the urine is diminished to a very limited extent, the sulphates increased, while the urea is at the same time increased. (5.) As to its hæmostatic effect no explanation at present can be given, and it must suffice simply to remark such action. (6.) How does antipyrin reduce temperature? The hypothesis that this special action of the drug is produced by the evaporation of the perspiration must be discarded, and in opposition to Quierolo, who explains this effect by the action upon the general circulation, or simply by its effects upon the vessels of the skin, Dr. Arduin inclines to the opinion that the reduction of temperature is the result of a direct action of the drug upon the *thermogenic centres,* and holds that in no other way can its prompt and certain apyretic effect be explained. The therapeutic action of the drug is stated as follows:—(1.) In all febrile diseases—not the simple fever, but the exaggeration of the fever, *i. e.,* hyperpyrexia—varying in each patient, is the indication for the use of apyretic medication. (2.) In the severer febrile diseases, such as typhoid fever, in tuberculous patients, in pulmonary phthisis, the persistence of the fever constitutes a new indication. (3.) To avoid the production of excessive and exhausting perspiration, and to avoid reducing the patient to a condition of adynamia, which may result from abuse of the drug, it should be administered in small doses. Finally, in apyretic medication, only a physiological and clinical result should be sought, that is, no effort should be made to produce a normal temperature in a disease of which pyrexia is a special characteristic. The drug may be administered per rectum by injection or suppository. In the latter form it is not efficacious as an antipyretic, but of great service in some cases of hæmorrhoidal flux. The most desirable method of administration, however, is by mouth. The antipyrin should be dissolved in a little sweetened water flavoured with aqua menth. pip. or other aromatic, with which a little red wine may be advantageously incorporated. The dose is from 8 to 12 grains in phthisis; 15 to 45 grains in typhoid fever and other diseases in which great elevation of temperature is characteristic. No more than 15 grains should be given at a time, and the doses should be at intervals of about one hour. —*Bulletin Général de Thérapeutique.* 30th March, 1885.

Dr. Pusinelli summarises the results of his investigations upon the therapeutic effects of antipyrin as follows:—(1.) Antipyrin operates in all cases, with the single exception of rheumatism, as a safe means of lowering the temperature. (2.) The duration of the time through which the antipyretic effect extends depends upon the condition of the disease and upon the size of the dose. Fifteen grains produce marked effect in severe febrile disease for a period of two or three hours; thirty grains for four or five hours; and forty-five grains for about six hours. (3.) Before the treatment with antipyrin is begun, test doses of the drug should be administered, of a strength varying from seven and a half to fifteen grains, in order to note the strength of individual cases. (4.) In severe febrile diseases, as in typhoid fever, croupous pneumonia, erysipelas, &c., in which the temperature is very high, doses of thirty grains for men and of fifteen grains for women are indicated, and then only at intervals of an hour, and if the remedy can be endured in doses of this size. In private practice its administration every two or three hours is advisable. For complete defervescence from sixty to ninety grains daily suffice. (5.) In diseases with a temperature but little above normal, and in chronic diseases, especially in phthisis with hectic fever, it is often necessary only to give a single dose of from fifteen to thirty grains, in order to obtain relief from the fever of from six to twelve hours, and even for a longer period. (6.) Against the febrile manifestations of acute articular rheumatism the remedy is sometimes contraindicated. Operation upon the joint disease was not observed. (7.) In intermittent fever antipyrin is without effect; it sometimes is serviceable in cutting short the duration of the fever at its highest point at the time of its occurrence. (8.) In no case of disease treated with antipyrin did it exercise a specific effect, for example, as doses of quinine in intermittent fever. However, the course of typhoid fever under treatment with antipyrin is perhaps shorter and milder. In croupous pneumonia there is marked improvement of the general conditions under its use without any effect being produced upon the local process of the disease in the lungs. Further, in phthisis with severe remittent fever, freedom from fever of several days' duration, with improvement of the general symptoms, is frequently manifested. (9.) Antipyrin, generally speaking, is well borne. Collapse and chills were never noticed; pulse and respiration were not unfavourably influenced, and upon the kidneys no unfavourable effect was observed. (10.) Unfavourable symptoms, due to an exanthem, occasionally were manifested, as sometimes were vomiting and perspiration. The vomiting was especially noticeable in women, rarely in men. To avoid the symptoms of vomiting, administration of the drug by enemata may be resorted to; but even then the symptom sometimes is observed. The perspiration is only seldom disagreeable and harmful to the patient, and it then may be obviated by the contemporaneous administration of atropia. (11.) Antipyrin has the great advantage over quinine of being easily soluble in water, and further, it is of itself capable of reducing the temperature so that for a long time a perfectly normal bodily temperature is obtained, and this quinine is unable to accomplish. (12.) Antipyrin is to be preferred to kairin and hydro-chinin on account of its persistent effect upon the fever, and further, on account of the absence of collapse and chills during its use.—*Deutsche Med. Wochenschr.* 12th March, 1885. *Amer. Journ. Med. Sciences.*

Concentrated Solutions of Saline Cathartics in Dropsy.—Dr. Matthew Hay, in the *London Lancet* for 21st April, 1883, proposed a novel method for the treatment of certain cases of dropsy, based on the administration of concentrated solutions of saline cathartics.

He there cites a case of cardiac dropsy where the patient seemed to be in the last extremity from suffering and prostration, dyspnœa, ascites, and general anasarca. "An abundance of soft râles all over the chest indicated a pronounced œdema of the lungs. He had taken every variety of renal and cardiac stimulants, and had been purged repeatedly." Dr. Hay ordered that he should have as little as possible of food and liquids during the night in order to free the alimentary canal from digestive juices and other fluids and permit the full action of the salt. The next morning three ounces of sulphate of magnesium were administered dissolved in two tablespoonfuls of hot water, no water to be given afterward.

The result was most gratifying. In less than an hour after the purgative had been given, its cathartic effect was manifested, and there were repeated evacuations in the next few hours; on each occasion the water seemed to "gush" from him, and he passed unusually large quantities of urine. There evidently had not been merely a removal of so much fluid from the blood and tissues as was necessary for the usual dilution of the salt within the intestines, but the sharp, sudden withdrawal of fluid from the tissues by the concentrated blood had initiated a movement of the fluid into the latter which had continued for some hours after the direct action of the salt and the blood had ceased, and until the tissues were in great part rid of their superfluous liquid. The improvement was, in fact, most marked, and continued under an occasional repetition of the concentrated saline solution. The conditions of the treatment, then, are previous abstinence from food and drinks and the administration of the salt (which should preferably be Epsom, on account of its great solubility) in a large dose in the smallest possible quantity of water.

Dr. W. G. Eggleston has reported in the *Journal of the American Medical Association*, 28th March, 1885, the details of a case occurring in his own practice where the method of Dr. Hay was carried out with equally good results. The patient was suffering from a large pleuritic effusion, with prostration and gradually increasing dyspnœa. Tapping was indicated and advised, but declined by the patient. He was then ordered to abstain from water and liquid food and to take, the next morning, sulphate of magnesium, three ounces in less than half a tumblerful of water. The salt operated in less than an hour, and during the day there were eight large watery evacuations. As the patient expressed it, the water literally poured from him. There was a marked decrease in the effusion. Another dose of the salt, three ounces, was ordered to be taken the next morning, and when seen the day following the fluid was still further diminished ; this effect was now followed up by twenty drops of fluid extract of jaborandi, which produced copious perspiration. In three days more the fluid had almost entirely disappeared from the chest, the lung had resumed its functions, and there was no dyspnœa. When last seen, several months after, there had been no return of the fluid. This new method of giving saline cathartics in dropsies merits further trial by the profession. — *Boston Med. and Surg. Journal.*

Spirillum in the Blood of the Fœtus.—Albrecht (*St. Petersburger Med. Wochenschr.*, 1884, No. 14), adds two more to his previously recorded cases where he found spirilla in the blood of children born during the course of relapsing fever in the mother. He believes that the disease is conveyed to the fœtus by the spores, not the spirillum itself, passing from the maternal to the fœtal side of the placental circulation. In one of the children he found distinct enlargement, hardening, and brittleness of the spleen. That infection is not conveyed simultaneously to mother and fœtus, is proved by a case of his, where miscarriage took place on the 4th day of the disease. In this case no organisms were found in the blood of the fœtus, though they were present in that of the mother.—*Centralbl. f. Chir.* 24th January, 1885.—D. M'P.

Tetanus Experimentally Communicated by Inoculation.—Carle and Rattone (*Giornale della R. Acad. d. Med. d. Torino,* 1884, No. 3,) have performed experiments which seem to show that tetanus in man is an " infectious " disease. A man died of tetanus following the pricking of an acne pustule in his neck. Soon after death they excised the tissues around the initial lesion, and with an emulsion made from it inoculated 12 rabbits—4 in the sheath of the sciatic nerve, 6 in muscular tissue, and 2 in the spinal canal. Of these rabbits 11 died of tetanus. Making another emulsion from the sciatic nerve of one of those they inoculated 2 others with it, with the same result. Inoculation, with the blood of the first series, on 2 other rabbits, had no effect.—*Centralbl. f. Chir.* 1884, No. 47.—D. M'P.

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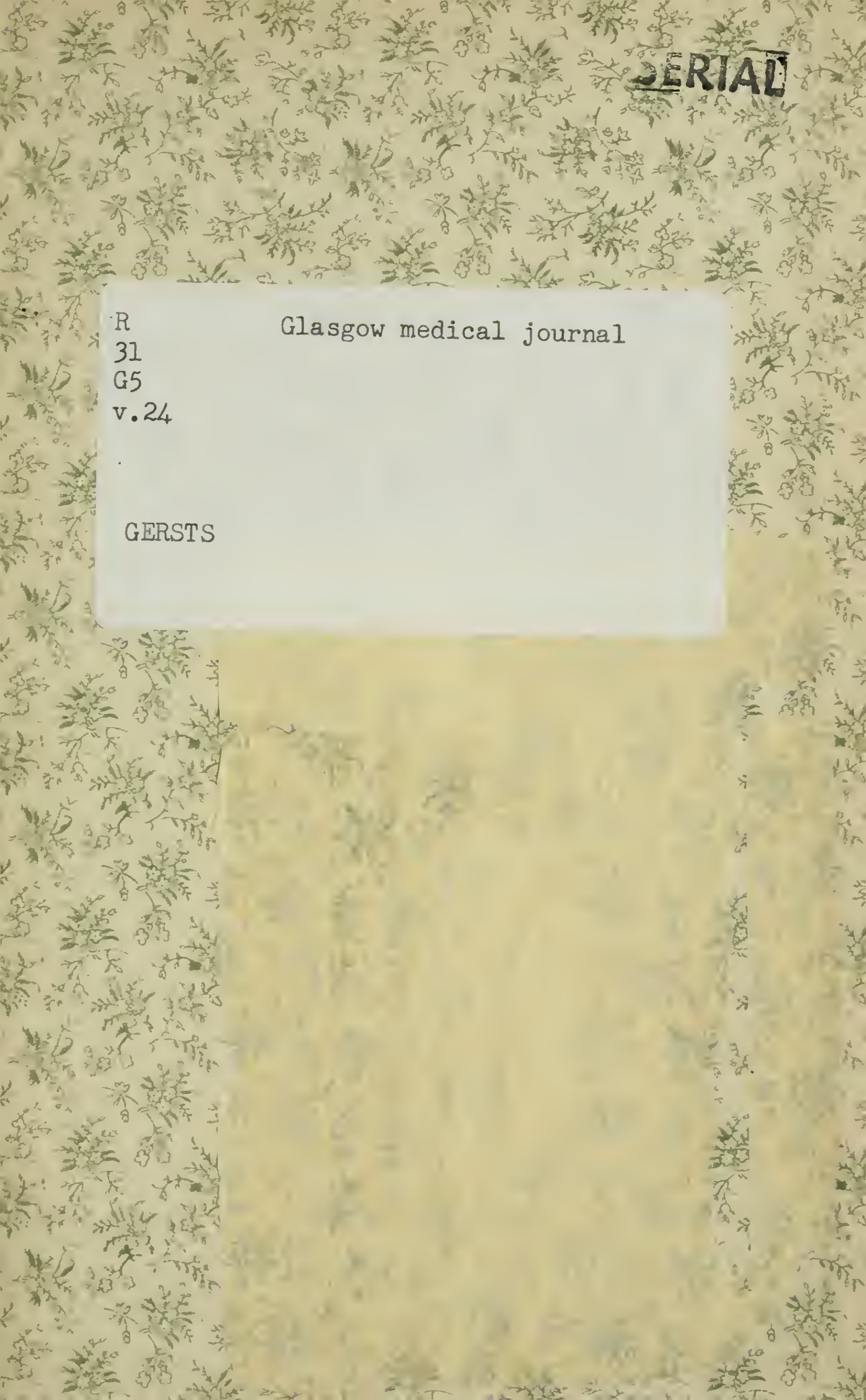

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